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भारत का मास्टरस्ट्रोक: अग्नि 5 ने छीना चीन का चैन, 7000 किलोमीटर रेंज ने किया पूरी दुनिया को बेचैन

परमाणु सक्षम अग्नि-5 बैलिस्टिक मिसाइल के सफल परीक्षणों के कुछ दिनों बाद भारत ने अब 7,000 किलोमीटर की दूरी से अधिक के लक्ष्य को भेदने की क्षमता विकसित कर ली है। यह भारत का मास्टरस्ट्रोक है। 5000 किमी रेंज की बात की थी लेकिन परीक्षण 7,000 किमी रेंज के लिए हुआ है। अग्नि-V भारत के रक्षा अनुसंधान एवं विकास संगठन (DRDO) द्वारा विकसित एक परमाणु सक्षम अंतरमहाद्वीपीय बैलिस्टिक मिसाइल है।

उधर चीनी शोधकर्ताओं का आरोप है कि इस मिसाइल की रेंज 8,000 किलोमीटर है। अग्नि-5 बैलिस्टिक मिसाइल की भेदने की क्षमता 2,000 किमी बढ़ने से चीन की राजधानी बीजिंग समेत पूरा चीन भारत के निशाने पर आ गया है। अब चीन का कोई कोना नहीं बच पाएगा। जो भारत की ये मिसाइल भेद नहीं सकती है। चीन में सभी लक्ष्यों को निशाना बनाने में सक्षम हो गया है। इसके अलावा सभी यूरोपीय देश, मिस्र और दक्षिण अफ्रीका समेत अधिकांश अफ्रीकी देश, पाकिस्तान समेत एशिया के सभी देश अग्नि-5 के रेंज में आ गए हैं। कुछ ही मिनटों में भारतीय सेना दुश्मनों को नेस्तनाबूद कर सकता है।

रक्षा प्रतिष्ठान के सूत्रों ने एएनआई को बताया कि DRDO मिश्रित सामग्री के साथ स्टील सामग्री को बदलकर अग्नि -5 मिसाइल के वजन को कम करने में सक्षम है। उन्होंने कहा कि मिसाइल प्रणाली में जो वजन कम किया गया है, वह 20 प्रतिशत से अधिक है और अगर सरकार चाहे तो परमाणु सक्षम रणनीतिक मिसाइल 7,000 किलोमीटर से आगे जा सकती है। सूत्रों ने अग्नि-3 का उदाहरण दिया, जिसका वजन करीब 40 टन है और यह 3,000 किलोमीटर के लक्ष्य को मार सकता है, लेकिन अग्नि-4 का वजन 20 टन से थोड़ा अधिक है, जो बहुत लंबी दूरी तय कर सकता

है। मिसाइल की विस्तारित रेंज जो सामरिक बल कमान का हिस्सा है, संघर्ष के समय योजनाकारों को कई तरह के विकल्प देगी। भारत का परमाणु हथियार कार्यक्रम मुख्य रूप से चीन और पाकिस्तान सहित अपने विरोधियों के खिलाफ प्रतिरोध के लिए है क्योंकि भारत की पॉलिसी नो-फर्स्ट-यूज है। यह दूसरी मारक क्षमता को मजबूत कर रहा है और पनडुब्बी से प्रक्षेपित बैलिस्टिक मिसाइल के विकास पर भी काम कर रहा है। सूत्रों ने कहा कि मिसाइल के नए अधिकतम संभावित रेंज के टेस्ट का फैसला सरकार को लेना है। भारत ने गुरुवार को 5400 किलोमीटर की पूरी रेंज में अग्नि-5 परमाणु सक्षम बैलिस्टिक मिसाइल का रात्रि परीक्षण सफलतापूर्वक किया था। मिसाइल पर नई तकनीकों और उपकरणों को मान्य करने के लिए टेस्ट किया गया था जो अब पहले से हल्का है।

पिछले साल अक्टूबर में भारत ने ओडिशा के एपीजे अब्दुल कलाम द्वीप से सतह से सतह पर मार करने वाली बैलिस्टिक मिसाइल, अग्नि-5 का सफल प्रक्षेपण किया था। रक्षा मंत्रालय ने एक बयान में कहा कि मिसाइल, जो तीन चरण के ठोस ईंधन वाले इंजन का उपयोग करती है, उच्च सटीकता के साथ 5,000 किलोमीटर तक के लक्ष्य को भेदने में सक्षम है।

इसने कहा था कि अग्नि-5 का सफल परीक्षण भारत की 'विश्वसनीय न्यूनतम प्रतिरोध' की घोषित पॉलिसी के अनुरूप है, जो 'नो फर्स्ट यूज' की प्रतिबद्धता को रेखांकित करता है। जून 2018 में, भारत ने पहली बार डॉ एपीजे अब्दुल कलाम द्वीप (व्हीलर द्वीप) से अग्नि 5 का सफलतापूर्वक परीक्षण किया था।

<https://www.timesnowhindi.com/india/indias-masterstroke-agni-5-took-away-chinas-peace-7000-km-range-made-the-whole-world-restless-article-96307337>



Sat, 17 Dec 2022

अग्नि-5: सात हजार किमी तक दुश्मन के ठिकाने को भेद पाएगी

अग्नि-5, DRDO ने मिसाइल की रेंज बढ़ाने में पाई सफलता

बैलिस्टिक मिसाइलों के मामले में भारत एक ऊंची छलांग लगाने के लिए तैयार है। परमाणु हथियार ले जाने में सक्षम बैलिस्टिक मिसाइल अग्नि-5 के सफल परीक्षणों के कुछ दिनों बाद भारत ने अब 7,000 किलोमीटर की सीमा से अधिक के लक्ष्य को भेदने की क्षमता विकसित कर ली है। मिसाइल की रेंज को बढ़ाने का फैसला सरकार को लेना है।

अग्नि-5 मिसाइल का वजन कम करने में सक्षम DRDO

सूत्रों ने कहा कि रक्षा अनुसंधान और विकास संगठन (डीआरडीओ) अब अग्नि-5 मिसाइल का वजन कम करने में सक्षम है। स्टील सामग्री को मिश्रित सामग्री से बदलकर अग्नि-5 का वजन घटाया जा सकता है। इस प्रक्रिया के जरिये मिसाइल का वजन 20 प्रतिशत से अधिक घटाया जा सकता है। अगर सरकार चाहे तो इस परमाणु सक्षम मिसाइल की मारक क्षमता को बढ़ाकर 7,000 किलोमीटर से ज्यादा दूर तक किया जा सकता है।

रणनीतिकारों को मिलेंगे कई तरह के विकल्प

विज्ञानियों ने अग्नि-3 का उदाहरण दिया। इसका वजन लगभग 40 टन है और यह 3,000 किलोमीटर के लक्ष्य पर हमला कर सकती है। वहीं अग्नि-4 का वजन 20 टन से थोड़ा अधिक है और यह बहुत लंबी दूरी तय कर सकती है। मिसाइल की विस्तारित रेंज संघर्ष के समय रणनीतिकारों को कई तरह के विकल्प उपलब्ध करवा सकती है।

नो फर्स्ट यूज' की नीति पर चलता है भारत

परमाणु हथियारों के मामले में भारत 'नो फर्स्ट यूज' की नीति पर चलता है। भारत का कहना है कि उसका परमाणु हथियार कार्यक्रम मुख्य रूप से चीन और पाकिस्तान सहित अपने विरोधियों के खिलाफ प्रतिरोध के लिए है। भारत अपने जवाबी हमले की क्षमता बढ़ा रहा है। यह पनडुब्बी से बैलिस्टिक मिसाइल दागने की क्षमता भी विकसित कर रहा है।

<https://www.jagran.com/news/national-nuclear-capable-agni-v-missiles-can-strike-targets-beyond-7000-km-by-reducing-weight-23262101.html>



Sat, 17 Dec 2022

Agni-V Range Now Beyond 7,000 Km by Replacing Steel with Composite Material: DRDO Sources

Days after successfully testing the nuclear-capable Agni-5 ballistic missile, India has gained the potential to hit targets over 7,000 kilometres away. According to defence sources, the Defence Research and Development Organisation (DRDO) was able to lower the weight of the Agni-5 missile by replacing steel components with composite materials.

"The weight reduction that has been achieved in the missile system is beyond 20 per cent and if the government wants, the nuclear-capable strategic missile can go beyond 7,000 kms," ANI reported quoting sources from DRDO. The enhanced range of the missile, which is part of the Strategic Forces Command, will provide planners with a choice of alternatives during times of conflict. Because India has a no-first-use policy, its nuclear weapons program is primarily for deterrent against its opponents, especially China and Pakistan. It has been working on improving its second-strike capability and developing a submarine-launched ballistic missile.

According to the sources, the government will have to decide whether to test the missile at its new maximum probable range. On Thursday, India successfully conducted night trials of the Agni-5 nuclear-capable ballistic missile at its maximum range of 5400 kilometers. The test was conducted to validate new technologies and equipment on the missile, which is now lighter than it was previously. In October 2021, India successfully launched the surface-to-surface ballistic missile Agni-5 from APJ Abdul Kalam Island in Odisha.

The missile, which has a three-stage solid-fuelled engine, is capable of attacking targets at ranges of up to 5,000 kilometres with a high degree of accuracy, according to the defence ministry. The successful test of Agni-5 is consistent with India's declared objective of having 'credible minimum deterrence,' which underlies the pledge to 'No First Use,' according to the statement.

<https://www.timesnownews.com/india/agni-v-range-now-beyond-7000-km-by-replacing-steel-with-composite-material-drdo-sources-article-96302180>



Sat, 17 Dec 2022

20% Weight Reduced, Agni-V can now Strike Targets Beyond 7,000 Km

India will now be able to strike targets beyond 7,000 km with the weight of the Agni-V missile reduced significantly. The Defence Research and Development Organisation, or DRDO, has been able to reduce the weight of the missile by replacing its steel content with composite materials, defence officials told India Today TV.

“The weight reduction that has been achieved in the missile system is beyond 20 per cent and if the government wants, the nuclear-capable strategic missile can go beyond 7,000 km,” they added. Earlier, such modifications have helped reduce the weight and extend the range of the strategic missiles - the Agni-III, which weighs around 40 tonnes, can strike targets at 3,000 km, while the Agni-IV, weighing slightly more than 20 tonnes, can cover a much longer range.

The extended range of the missile, which is part of the Strategic Forces Command, will give a variety of options to the planners during times of conflict. India's nuclear weapons programme is mainly deterrence against its adversaries, including China and Pakistan, as it has a no-first-use policy. India is strengthening its second strike capability and working on the development of a submarine-launched ballistic missile. The decision to test the missile for its new maximum possible range will have to be taken by the government, sources said. India successfully carried out night trials of the Agni-V missile at its full range of 5,400 km on Thursday. The test was carried out to validate new technologies and equipment on the missile which are now lighter than before. In October last year, India carried out the successful launch of the surface-to-surface ballistic missile Agni-V from the APJ Abdul Kalam Island in Odisha. The missile, which uses a three-stage solid-fuelled engine, is capable of striking targets up to 5,000 km with a very high degree of accuracy, the defence ministry said in a statement.

<https://www.indiatoday.in/amp/india/story/agni-v-20-weight-reduced-agni-v-can-strike-targets-beyond-7000-km-2310346-2022-12-17>

What is Agni-5, the Long-Range Nuclear Capable Missile that India has Tested?

A successful flight test of India's long-range surface-to-surface nuclear capable ballistic missile, Agni-5, was undertaken on Thursday (December 15) night. The Strategic Forces Command (SFC), which operates the Agni-5, carried out the test from A P J Abdul Kalam Island off the coast of Odisha. Agni-5 was earlier tested last year in October by the SFC independently for the first time, a few months after China had tested its hypersonic missile.

The latest test comes a few days after Chinese and Indian troops clashed at the Line of Actual Control in Tawang, Arunachal Pradesh. Agni-5 can strike targets at ranges of 5,000 to 5,500 km, which puts major cities in China, including the capital Beijing, within its range.

Here are the key features of the missile and how it came to be developed.

What is the Agni-5 missile?

The nuclear-capable missile, which uses a three-stage solid-fuelled engine, has been developed by India's Defence Research and Development organisation (DRDO). The development of Agni missiles started in early 1980 under the Integrated Guided Missile Development Programme spearheaded by scientist and former President Dr A P J Abdul Kalam, who was also a central figure in India's missile and space programmes.

Medium to Intercontinental versions of Agni missile systems 1 to 5 have varying ranges — starting from 700 km for Agni-1 to 5000 km and above for Agni-5. In June 2021, DRDO successfully tested Agni P, a canisterised missile with a range capability between 1,000 and 2,000 km.

This means that the missile can be launched from road and rail platforms, making it easier for it to be deployed and launched at a quicker pace. Agni-6 is also said to be under development, with a range starting at 8000 km.

Agni-5 missile test: What was the latest test for?

Agni-5 has been successfully tested multiple times since 2012. Defence Ministry sources said the latest test was carried out primarily to validate various new technologies on board the missile. The flight performance of the missile was tracked and monitored by radars, range stations and tracking systems all through the mission including by the assets deployed in the sea.

At the time of the previous test in October 2021, the Ministry of Defence in its statement had highlighted the posture of 'credible minimum deterrence' and 'No First Use' which are pivotal points of India's nuclear doctrine, first published in 2003. This basically means India would never use nuclear weapons first in a conflict situation but only as retaliation, and the arsenal maintained is to only deter the possibility of an attack on India.

Who undertook the test?

The SFC, which carried out the test, is a key tri-services formation that manages and administers all the strategic assets and falls under the purview of the Nuclear Command Authority of India.

The Nuclear Command Authority is the sole body which can authorize the use of nuclear weapons. It comprises a Political Council and an Executive Council. The Political Council is chaired by the Prime Minister. The Executive Council, chaired by the National Security Advisor, provides inputs for decision-making by the Nuclear Command Authority and executes the directives given to it by the Political Council.

<https://indianexpress.com/article/explained/explained-sci-tech/what-is-agni-5-nuclear-missile-explained-8328180/>



Sun, 18 Dec 2022

Andhra Pradesh: SVIMS Ties up with DEBEL for Development of Biomedical Devices

Sri Venkateswara Institute of Medical Sciences (SVIMS) University, Tirupati, inked a pact with Defence Bio-Engineering and Electro Medical Laboratory (DEBEL) for training, research and development of biomedical devices. The Bengaluru-based laboratory functions under the Defence Research and Development Organisation (DRDO, Ministry of Defence).

The tie-up, signed between SVIMS Director and Vice-Chancellor B. Vengamma and DEBEL Director T.M. Kotresh at the latter's campus on Saturday, is considered a path-breaking development in the arena of manufacture of biomedical devices in the country. It may be recalled that former DRDO Director G. Satish Reddy and MP (Tirupati) M. Gurumoorthy had taken special care to get the pact through. A similar MoU pertaining to research on implants is all set to be signed in a week, MP Dr. Gurumoorthy said.

<https://www.thehindu.com/news/national/andhra-pradesh/andhra-pradesh-svims-ties-up-with-debel-for-development-of-biomedical-devices/article66274814.ece>

Defence News

Defence Strategic : National/International



Press Information Bureau
Government of India

Ministry of Defence

Sun, 18 Dec 2022

Indigenous Stealth Guided-Missile Destroyer INS Mormugao, Second Warship of P15B Class, Commissioned by Raksha Mantri in Mumbai

The warship, packed with state-of-the-art weapons & sensors, will enhance country's maritime capabilities & secure national interests, says Shri Rajnath Singh

“Bolstering security apparatus amid evolving global scenario is our top priority”

Aim is to make India an indigenous ship building hub: RM

Indian Naval Ship (INS) Mormugao (D67), second warship of the P15B class of stealth guided-missile destroyers, was commissioned in the august presence of Raksha Mantri Shri Rajnath Singh at Naval Dockyard, Mumbai on December 18, 2022. The event marked the formal induction of the second of the four ‘Visakhapatnam’ class destroyers, indigenously designed by the Indian Navy's in-house organisation Warship Design Bureau and constructed by Mazagon Dock Shipbuilders Limited (MDL), Mumbai.



“Shining example of ‘Aatmanirbharta’ in defence”

In his address, the Raksha Mantri described INS Mormugao as one of the most powerful indigenously-built warships which will significantly enhance the country’s maritime capabilities and secure national interests. “INS Mormugao is one of the world’s most technologically-advanced missile carriers. With over 75% indigenous content, it is a testimony to India’s excellence in design and development of warships and a shining example of our growing indigenous defence production capabilities. The warship will meet the present and future needs of our country as well as of our friendly countries across the globe,” he said.

“Navy securing maritime interests & contributing to socio-economic progress”

Shri Rajnath Singh commended the Indian Navy and MDL for the commissioning of INS Mormugao, describing it as the result of the hard work, dedication and aspirations of the engineers, technicians, designers and scientists. It is a matter of great pride for India, he said. The Raksha Mantri extended congratulations to the Indian Navy on behalf of the entire nation for not only safeguarding maritime interests, but also contributing significantly to the socio-economic progress.

The Raksha Mantri described safeguarding India’s interests in the Indian Ocean Region as the prime responsibility of the Navy. “Our growing economy is directly connected to the increasing trade, most of which is through sea routes. Our interest is directly linked to the Indian Ocean. Being an important country in this region, the role of Indian Navy becomes more important in its security. It is heartening to see that they are discharging their duties successfully,” he said.

“Armed Forces - backbone of India’s unprecedented growth”

Shri Rajnath Singh lauded the Armed Forces for protecting the borders and coasts with unmatched courage and dedication, terming them as the backbone of India’s unprecedented growth. “India is touching newer heights of success every day. We are now among the top five economies of the world. According to a report by investment firm Morgan Stanley, we will be among the top three economies in the next five years. India’s handling of the COVID-19 pandemic has been appreciated by the world. Our G-20 presidency is another landmark achievement. This has been successful due to the aspirations, hard work and determination of every Indian. But, the most important reason behind our success is our secure borders and coasts. It is due to the readiness and promptness of our Armed Forces that we have a fool-proof security apparatus,” he said.

“Bolstering security apparatus is our top priority”

The Raksha Mantri reiterated the Government’s resolve to prepare the nation to deal with any situation arising due to the rapidly changing global scenario. He said, it is the Government’s top priority to continue strengthening the security infrastructure by equipping the military with state-of-the-art indigenous weapons/equipment. “Economic, political and trade relations between countries are constantly evolving. The Covid-19 pandemic, situation in the middle east, Afghanistan and now Ukraine. It directly or indirectly impacts every country in one way or another. In this era of globalisation, almost all nations are dependent on each other in the field of trade. Hence, rule-based freedom of navigation, security of sea lanes etc. have become more important than ever for stability and economic progress of the world,” he stated.

“Aim is to make India an indigenous shipbuilding hub”

Shri Rajnath Singh also praised MDL for growing in stature by continuously building new ships with state-of-the-art technologies. He urged them and other shipbuilding companies to enhance their capabilities by taking advantage of the Government’s initiatives and move forward towards making India an indigenous shipbuilding hub.

“Countries around the world are today moving towards modernising and strengthening their military power due to the global security scenario. The demand for military equipment is continuously increasing. We have introduced a number of policies which will help our public or private sector companies to become world class players. You all must take advantage of these policies and strive to cater to the needs of our Navy & Coast Guard, while meeting international requirements. We will extend all possible support to realise Prime Minister Shri Narendra Modi’s vision of ‘Make in India, Make for the World’,” he said.

Speaking at the Commissioning Ceremony of ‘Mormugao’ in Mumbai. Watch <https://t.co/pY8dBWZZhS> v

— Rajnath Singh (@rajnathsingh) December 18, 2022

“INS Mormugao - India’s giant leap in warship building capabilities”

Speaking on the occasion, Chief of the Naval Staff Admiral R Hari Kumar stated that the commissioning of INS Mormugao is indicative of the large strides India has taken in warship design and building capability over the last decade. He added that the warship is a true illustration of ‘Aatmanirbhar Bharat’ and ‘Make in India’ initiative and it reinforces the Navy’s commitment to supporting India’s transformation into a global ship-building hub. The warship, with her multi-dimensional combat capability, will form part of the Western Fleet - the sword arm of the Indian Navy, he said.

Admiral R Hari Kumar complimented the Commanding Officer and his team of officers and sailors for their sustained efforts and perseverance during the trials and acceptance of the warship. He urged them to move forward with the same momentum and prepare for future operational deployments. He also commended MDL for playing a significant role in the transition from a ‘Buyers Navy to a Builders Navy’.

About INS Mormugao

Stealth, fire power & manoeuvrability with indigenous content

Measuring 163m in length and 17m in breadth with a displacement of 7,400 tonnes, INS Mormugao is packed with sophisticated state-of-the-art weapons and sensors such as Surface-to-Surface Missile and Surface-to-Air Missiles. The ship is fitted with a modern Surveillance Radar which provides target data to the gunnery weapon systems. Its Anti-Submarine Warfare capabilities are provided by the indigenously-developed Rocket Launchers, Torpedo Launchers and the ASW helicopters.

Named after the historic port city of Goa on the west coast, the ship is equipped to fight under Nuclear, Biological and Chemical warfare conditions. It is propelled by four powerful Gas Turbines, in a Combined Gas and Gas configuration, capable of achieving speeds in excess of 30 knots. The ship has enhanced stealth features resulting in a reduced Radar Cross Section. INS Mormugao has a complement of about 300 personnel.

With over 75% indigenous content, all her major weapons and sensors have been developed and manufactured in India either directly through design and development by Indian Original Equipment Manufacturers (OEMs) or through strategic tie-ups and Transfer of Technology with reputed foreign OEMs.

P15B destroyers

P15B destroyers incorporate new design concepts for improved survivability, seakeeping and manoeuvrability. Enhanced stealth has also been achieved, making the ships difficult to detect. With a significantly increased indigenous content, P15B destroyers are a hallmark of self-reliance in warship design and building and a shining example of ‘Aatmanirbhar Bharat’.

Vision & Aim

With power dynamics in the Indian Ocean Region constantly changing, the ship's all-domain capability will augment the Indian Navy's mobility, reach and flexibility to accomplish any mission or task. Induction of the ship into the Navy also reflects India's growing ability to remain First Responder and Preferred Security Partner in the region.

Mighty Mormugao, a P15B stealth guided missile destroyer formally inducted into the #IndianNavy.

One of the most potent warships to have been constructed in India, it measures 163m in length, 17m in breadth with a displacement of 7400 tonnes. @rajnathsingh @indiannavy pic.twitter.com/1NvJmsEMvu

— A. Bharat Bhushan Babu (@SpokespersonMoD) December 18, 2022

History

The ship was launched on September 17, 2016 and commenced sea trials on December 19, 2021, coinciding with 60 years of Goa Liberation. The commissioning on 18 December is significant as it was the same date in 1961 when Operation Vijay was launched to liberate Goa from Portuguese rule. Shri Rajnath Singh, in his address, paid glowing tributes to former Raksha Mantri late Manohar Parrikar, who hailed from Goa and had launched INS Mormugao in 2016.

Commissioning Ceremony at a glance

During the ceremony, Shri Rajnath Singh was presented with a guard of honour upon his arrival. The Commanding Officer Captain Kapil Bhatia then read out the Ship's Commissioning Warrant. Subsequently, the Naval Ensign was hoisted onboard for the first time and the Commissioning Pennant broken (unfurled) on the main mast to the time of the national anthem played by the Naval Band. Before his address, the Raksha Mantri unveiled the Commissioning Plaque, dedicating the ship to the service of the nation. Governor of Goa Shri PS Sreedharan Pillai, Chief Minister of Goa Dr Pramod Sawant, Chief of Defence Staff General Anil Chauhan, Flag Officer Commanding-in-Chief, Western Naval Command Vice Admiral Ajendra Bahadur Singh and CMD, MDL Vice Admiral Narayan Prasad (Retd) also attended the event.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1884552>



**Press Information Bureau
Government of India**

Ministry of Defence

Fri, 16 Dec 2022

Marketing of Indigenously Developed Defence Equipment

The following initiatives have been taken by the Government to facilitate marketing of indigenously-developed defence equipment to international players:

- The export of items specified in Category 6 (Munitions List) is governed by the extant Standard Operating Procedure (SoP) issued by the Ministry of Defence. The SOP has been streamlined and simplified from time to time for promotion of defence export and ease of doing business.
- An end to end portal – www.defenceexim.gov.in – has been developed for receipt & processing of applications for grant of Export Authorisation. Export Authorisations are digitally signed and issued through the portal.
- Ministry of Defence has brought in three OGELs (Open General Export License); one for the select parts and components; another for intra-company transfer of technology and third for major platforms.
- An Export Promotion Cell has been established in Ministry of Defence to co-ordinate and follow-up on export related action including enquiries received from various countries and facilitate private sector and public sector companies for export promotion.
- Defence Attachés have been mandated for export promotion of Indigenous defence products of both public and private sector. For export promotion of indigenously manufactured equipment, a scheme is in place wherein Defence Attachés are provided financial support as per their annual requirement to promote export of indigenous defence equipment.
- Subject to strategic considerations, domestically manufactured defence products are being promoted through Lines of Credit/Funding.
- Export leads received from various stakeholders are disseminated to the registered Indian Defence Exporters through online portal. This facility helps the Indian defence exporters to quickly respond to export opportunities arising in other countries.
- Two export booklets i.e. ‘Indian Defence Industry, a Global reach’ and ‘Catalogue Indian Defence Industry 2022’ for promotion of Indigenous Defence products from both Public and Private sector have been released during the month of March 2022.
- In order to boost defence exports, webinars are organised with Friendly Foreign Countries (FFCs) under the aegis of DDP, MoD through Industry Associations. Total 33 such webinars have been organised so far.
- A mechanism on ‘Enabling Foreign Delegations (both from Government and Services) visiting India to meet Defence Exporters’ has been set up to understand the capabilities of Indian defence industry and to explore potential areas of their interest.

Innovations for Defence Excellence - Defence Innovation Organisation (iDEX-DIO) has shared Memorandum of Intent (MoI) with United States of America (USA), United Kingdom (UK),

Australia and Sweden to increase cooperation on Defence innovation and take steps to enable deeper collaboration in the areas of innovation, science, and technology ecosystems.

This information was given by Raksha Rajya Mantri Shri Ajay Bhatt in a written reply to Shri Vishnu Dayal Ram in Lok Sabha today.

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Press Information Bureau
Government of India

Ministry of Defence

Fri, 16 Dec 2022

Import and Export of Defence Equipment

As per Stockholm International Peace Research Institute, India's military expenditure for the year 2020 and 2021 is as under:

(in current US \$ million)

2020	2021	Increase in the year 2021 over 2020
72,937.10	76,598.00	3660.90 (5.02%)

The increase in defence spending in the year 2021 over 2020 is attributable to the requirement of funds projected by the Services and the availability of resources with the Government.

Details of import and export of defence equipment during the last three years are as under:

Major Export: Coastal Surveillance System, Light Weight Torpedo, DO-228 Aircraft, Aircraft Towing Tractor, Weapon Locating Radar, Fast Patrol Vessel (FPV) 'SCGS Zoroaster', Equipment 120mm Mortar Bomb 120 mm HE, Motor Grader BG6051 and Bulldozer 65-1 and Spares, Fire Control System, Armoured Protection Vehicle, Diesel 6x6 Base Vehicle, Mine protected Ambulance Vehicle, High Speed Guard Boat, Armoured Light Specialist Vehicle (6Nos.), Mine Protected Vehicle Right Hand Drive 4x4, 7.62x51mm Sniper Rifle & 0.338 Lapua Magnum Sniper Rifle, Simulator etc.

Major Import: Jammer, Radar, Doppler Radar, THeMIS UGV, LOITERING MUNITIONS SYSTEM, UAV, NIGHT VISION IMAGING SYSTEM, Armoured Vehicle, Airport Surveillance Radars (ASR), CLOSE-IN WEAPON SYSTEM, C-Block-Jamming System, 7.62x51mm ARSENAL Machine Gun, Ground Support Missile Test Equipment etc.

Department of Defence Production (DDP), Ministry of Defence grants import licence to provide companies for import of items covered under 69 ITC(HS) Codes under the powers delegated by DGFT to DDP. This information was given by Raksha Rajya Mantri Shri Ajay Bhatt in a written reply to Shri Dibyendu Adhikari in Lok Sabha today.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1884093>



**Press Information Bureau
Government of India**

Ministry of Defence

Fri, 16 Dec 2022

Value of Indigenous Defence Production

The value of indigenous defence production for Financial Years 2020-2021 and 2021-2022 are Rs 84,643 crore and Rs 94,846 crore respectively. To achieve 'Aatmanirbharta' and realise the goal of 'Make in India', Government of India has established two Defence Industrial Corridors (DICs) in the country, one in Uttar Pradesh and other in Tamil Nadu. Six nodes viz. Agra, Aligarh, Chitrakoot, Jhansi, Kanpur and Lucknow have been identified for developing Uttar Pradesh Defence Industrial Corridor (UPDIC). Similarly, five nodes viz. Chennai, Coimbatore, Hosur, Salem and Tiruchirappalli have been identified for developing Tamil Nadu Defence Industrial Corridor (TNDIC). Government intends to develop defence manufacturing ecosystem having conducive conditions including supply chain for giving push to production and testing & certification to create economies of scale and facilitate development of internationally competitive enterprises in the country.

As per the information received from Government of Uttar Pradesh for UPDIC, 105 Memoranda of Understanding (MoUs) have been signed with industries/organisations worth potential investments of Rs 12,139 crore. Already, Rs 2,422 crore have been invested in UPDIC. Total 1,608 hectare of land has been acquired for development of UPDIC. Further, as per the information received from Government of Tamil Nadu for TNDIC, arrangements have been made through MoUs etc. for potential investment of Rs 11,794 crore by 53 industries. Already, Rs 3,847 crore have been invested in TNDIC. Total 910 hectare of land has been acquired for development of TNDIC.

The seven new DPSUs carved out of erstwhile Ordnance Factory Board have been incorporated as Government companies (wholly owned by the Government of India) under the Companies Act 2013 in October 2021. Government has taken steps to initially handhold and support these new defence companies in starting their business as corporate entities. In this regard, outstanding indents with erstwhile OFB were grandfathered and converted into deemed contracts valuing about Rs 70,776 crore for the next five years. These deemed contracts provide annual targets for delivery of products. Every year, 60% of amount pertaining to that year's target would be paid by the Services to the new DPSUs as advance as per the terms and conditions stipulated in the deemed contract. The advances provide the working capital to the newly constituted DPSUs. With more functional and financial autonomy, these new DPSUs are focusing on widening their customer base, including exports to augment the volume of defence production. The DPSUs are pursuing export opportunity through interaction with Defence Attaches at various Indian Embassies and Missions abroad.

This information was given by Raksha Rajya Mantri Shri Ajay Bhatt in a written reply to Prof Rita Bahuguna Joshi and others in Lok Sabha today.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1884090>

India Targets Rs 35,000 Crore Defence Exports and Industry Size of Rs 1.75 Lakh Crore by 2025

Import of more than 400 defence platforms banned to boost Indigenous defence industry – Rare imports in last two years. Defence exports see a phenomenal 8 times growth in last five years says former defence secretary Ajay Kumar as he speaks exclusively to News9 Plus' Nivriti Mohan.

Question: How do you define a self reliant indigenous defence sector?

Answer: Self reliance in defence is that we should have a defence industry ecosystem which is capable of meeting our defence requirements as well as capability of significant defence exports. Because once you have that capability, this will trigger the larger civil and commercial industry ecosystem also. Once you are exporting defence items, you are also helping friendly countries to be able to defend themselves.

Question: How self-reliant are we?

Answer: We are experiencing a huge wave of capability growth in this sector. As you know, we have the dubious distinction of being the largest importer of defence equipment in the world. We have now moved on to the path of self reliance. In last 2 years there has hardly been any case where we had to resort to any kind of defence import. We still have to import certain things because of the legacy equipment and for their maintenance but fresh imports are rare. We have seen that industry has shown the ability to produce things that armed forces need, in double quick time. One of the examples is how our drone ecosystem has developed. Less than a year back, we hardly had any drone or counter drone capability in the country. Today we have hundreds of companies and startups which are developing all kind of drones. We are not only making drones for our defence industry today, but witnessing tremendous amount of interest shown by foreign countries to buy drones and counter drones.

Question: How have we travelled this far?

Answer: It is about creating indigenous capability. The big part of this has been the relentless effort for providing ease of doing business for export. In 2015-16 our defence exports used to be Rs 1400 crore or so. And last year we touched Rs 13000 crore, a growth of 8 times in 5 to 6 years. This was possible because whole process was streamlined. First step was end-to-end digitization. Defence exports require consultation with a large number of stakeholders. It is not like, the seller and the buyer decide and an item gets sold. Here, you have to consult your own Defence Services, DRDO, Ministry of Defence, Governments of buyer countries etc, you have to make sure that buyer is not someone who is not legitimised to buy that equipment. This consultation would take months and years before, but after digitisation it is a matter days. There have been cases where we have given clearance in 2 to 3 days.

Question: Were there a lot of policy changes?

Answer: Yes, we made policy changes. If there is a company which is making repeated export requirements to a same customer/country, we have brought a provision of open general licence which enables such a company to do repeated exports and file returns on quarterly basis. We have streamlined the process of exports from our ports. Defence exports are restricted items and are only allowed from notified ports. We have streamlined it. Today many ports have been identified. Defence attaches in foreign countries have played a major role. Earlier, they looked for technologies that we could import to India. Now it has reversed. They are acting as people who are looking for opportunities for exports in those countries. We have defence attaches in 70 countries across the world. We have created a scheme where we provide financial support to them to be able to go and promote exports. This scheme was not there earlier. We have converted our Defence Expo and Aero India events from events where foreign companies used to showcase what they had to sell, to events where we showcase what we have to offer to Indian armed forces and rest of the world. All these factors combined have helped us transform into an exporting nation.

Question: What are we exporting?

Answer: We are exporting platforms, subsystems, components, depending on the needs of a country. Major defence export goes to the US. It is largely in terms of systems and sub systems for global OEMs, which shows that our industry is today able to meet quality specification of world's best foreign OEMs. We have also today become a big exporter of explosives both in public and private sector. We are also exporting platforms to friendly countries.

Question: What do we export most?

Answer: A whole range of products are exported, from bulletproof jackets, helmets, drones, missiles to tanks. We are seeing a lot of interest in services like repair and maintenance. In fact, we are doing lots of systems.

Question: Was this not happening earlier?

Answer: Great political will has been shown by the government, because of which there is energy and vibrancy that we never saw before. We have been talking about it for decades, but it is for the first time that we are walking the talk. From the Armed Forces' side today, we see greater willingness to buy and use indigenous equipment. It is not that they are compromising on quality, but we are producing some of the best. Recently, one of our startups developed a quantum computing-based system which has a leap of about 150 Kms, whereas the best so far has been 90 kms. So, it is the best system available.

Question: What part of our total defence requirements do we import?

Answer: Like I said, there was a time when we were importing 90% to 100%. Later, we did manufacturing here, but it was all licensed transfer of technology-based manufacturing. Difficulty in this case is that there are restrictions on the quantity of production, export, on any further upgrade or change in the system. You don't have that liberty. Really speaking, even when we were doing manufacturing, we were not self reliant as we were dependent on the country or OEM who had licensed the technology. Till about a few years back 75 to 80% was imported. In 2021, for the first time we decided that we will earmark certain percentage of our budget allocation for domestic items that will be bought in India. In first year we put 58% of the budget for domestic procurement. In 2021-22 the budget increased to 64%. In 2022-23, 68% of our budget is being used for products that are made in India. When I say 68 %, it doesn't mean that

we are importing 32%. A lot of this goes into meeting commitments which were made earlier, because defence supplies often take years to fulfill. So, this budget goes into meeting these commitments. Progressively now, the percentage of budget going to domestic industry is increasing. In last two years, there have been hardly any defence equipments that we have bought from abroad.

Question: There have been lists coming out banning imports of certain items from outside?

Answer: Positive indigenization lists have come. Four of them, in terms of platforms and systems, are a message to our domestic industry that these are the items that you can make and we are going to buy from you. And also, you will have the global market in addition to that. On the platforms side, it is a list of around 400 items. On the sub- systems side, the list is of more than 3000 items. Large numbers of systems and subsystems go into making a platform. If you look at an aircraft or a tank , tens and thousands of items go into making it. There were several critical items that were being imported. If you continue to import these items, in some way your dependence remains. So, it is very important that a tank is made here but at the same time, the items that go into making a tank are also made here.

Question: Where have we been importing from majorly?

Answer: We have been importing from several countries. IN 1970s-80s-90s Russia was our major destination. We imported from Europe, the US and Israel . Now we are not importing. This is how it is.

Question: Has it affected our relations with the countries we imported from?

Answer: No, the countries respect our decision. We have liberalised our policy framework for other countries to participate in our Defence Industry. They can come and invest in India up to 74% on the automatic route and 100% with a simple permission. Many of these companies today are participating in joint ventures in India and participating in our Defence industry. Today, when they come to India, they leverage Indian human resource, they leverage India's financial market, diplomatic relationship with many countries. Making in India enables them to sell in those countries too.

Question: Government says military exports rose by 334% during last 5 years. True?

Answer: I would like to clarify that it rose by 800% in the last 5 years. One of the reasons is our own industry's capability. A whole lot of export has been largely driven by the private sector, 70 to 80% of it. Second part is that it shows the maturity of industry in meeting quality and specifications, also streamlining procedures and greater transparency.

Question: India is eyeing Rs 35000 crore of defence exports and target production of Rs 1.75 lakh crore by 2025. Is that achievable?

Answer: In 2018 we set ourselves a target of Rs 1.75 lakh crore in industry size, and Rs 35000 crore of exports. This looked phenomenally huge then. Defence exports were only worth Rs 2500 crore then. So, 35000 crore looked huge and industry was also not that big. Today, we are well on the way to achieve that. Our industry size is over Rs 1 lakh crore. Our defence exports this year are likely to be Rs 16 to 17000 crore. Given the trend and momentum in the industry, I have no doubt that we should be able to achieve this target. We just need to do what we are doing. You have to continuously create and innovate. Our industry is tasting the market abroad for the first time. They are into the process of developing networks. Defence is a very sticky

industry. Take our own example, we bought from Russia and we kept on buying for decades. Once you start then you tend to buy again. This is giving us the opportunity to sell to them and make them buy from us again and again. We did not have that network earlier, talk to defence ministries and armed forces of these countries. Today we have that network with them. It is difficult to move a rock but once it starts rolling it is easy to maintain the momentum. We have seen the rock rolling already. Now we have to maintain the momentum.

Question: A large portion of GDP used to go for Defence imports. How is it now?

Answer: Comparison between countries is unfair. GDP, what you allocate depends on your budget. Budget is based on the tax that you receive in the country. Tax base is different for each country depending on multiple factors but let us take it differently. Earlier, whatever budget we used to spend on defence would have very limited impact on our economy because most of it was going for import. There was singular multiplier for every paisa of money spent in defence. Today, it is 3 to 4 times for every rupee that we spend on defence. If you look at history of mankind, technological advancement has been defined by military advancement. To be able to defend and protect your interest has been the prime consideration ever since the concept of nations and states came up. If you are able to create your defence industry ecosystem, these technologies which are frontier rise technologies have their commensurate, commercial, civil application, which you also have the technology for. So you are not dependent for these technologies on someone else. To that extent the country is benefited by its own technology in its civil economic growth. This we did not see in post-independence India because we were importing technology. Now we are creating technology. We are talking about Blue economy. Blue economy will get triggered if we are able to create technology for the Navy, specially the undersea technologies. You will be able to exploit the undersea economic resources far more easily. Each of these advancements have tremendous opportunity for our economic growth and our GDP growth.

Question: Seeing the geopolitical scenario now, how important is self reliance?

Answer: Today we are going through 'Amrit kaal'. We have a vision for 2047. World says that we will be the second-largest economy in the world much before 2047. If you look at the big economies of the world, if they are not capable to protect themselves their economic growth cannot be sustained. Therefore, as we aspire to be economically more developed and become more significant player in world affairs, our defence self dependence is important. If you are dependent, then your economic growth has limited meaning only.

Questions: Defense Corridors are being developed in Uttar Pradesh and Tamil Nadu. Tell us more about these corridors.

Answer: The role of private sector has increased. Private sector has made a lot of difference. We are seeing a lot of foreign traction in foreign investments in these corridors. We are also seeing several other states also realising the potential of these sectors today. In Defence Expo 2022 in Gandhinagar, we saw 10 states which showcased their policies that what they have to offer to the industry. I recollect that in the heydays of IT, all states were competing to get IT investments. A similar thing is happening to get defence investments. Production has started for several of these units. The whole idea is that you are creating an ecosystem. When these corridors are fully functional and developed you will find a supply chain within the corridor so that there is no difficulty and you do not have to source one component from thousands of miles away, adding to your cost. These flexibilities are available for the mother unit to source it from within the region.

Secondly, what we have seen is that clustering leads to greater innovation. So, the nodes in these corridors will become clusters, which will lead to new technologies that will get developed. It is not a single facility. It is an ecosystem that is being generated.

Question: Will this generate a lot of employment?

Answer: Yes. Significant numbers of direct and indirect employment runs in several lakhs.

Question: Would you mention a few ambitious indigenous products?

Answer: Practically, we have 360-degree capability of indigenization. Recently, we developed an indigenous aircraft carrier. Very few countries can have their own aircraft carrier. We have that capability. We are making our own submarines, our own ships - destroyers/frigates, we have fighter jets, trainer jets. A few days ago, the Prime Minister laid the foundation for creating a transport aircraft. So, various kinds of fixed-wing requirements of Air Force are being met. 75 AI-based products were inaugurated by Raksha Mantri for armed forces. We have a whole range of artillery guns that we make. We have a whole range of helicopters. We have missiles and communications radars. Future projects are, fifth generation fighter jet – AMCA - led by the DRDO, our own heavyweight helicopter with 10 tons to 15 tons capability. Project 75 is a submarine project, and we are in the process of indigenizing.

Question: What role do DRDO and ISRO have to play?

Answer: Both have a very important role. Space is becoming the new frontier of defence, and ISRO is a civilian organisation but the capability that they bring is very important. They have created an industry ecosystem that will also cater to defence requirements. DRDO will act both as facilitator and enabler. It will also act as an implementer of things which the industry is not able to do. Present effort is a combination of contribution of large number of players including DRDO, defense PSUs, startups, private industry, academia and more. I think each one has to contribute. There comes a time when a particular industry tends to take off. And this is the time for defence industry, where we have tremendous opportunity to look forward to.

Question: Where do we stand if we compare ourselves to other countries?

Answer: Our journey is recent. Till now, we were largely dependent, now we see great times ahead. We are making technologies that are at par or even ahead of others even today. We are at a take-off stage and from here we can only look forward and upwards.

<https://www.news9live.com/india/indiatargetsrs-35000-croredefenceexports-andindustry-size-ofrs-1-75-lakh-crore-by-2025-214829>



Sat, 17 Dec 2022

Indian Army Remains Prepared for All Military Contingencies: Govt

The Indian Army remains prepared for all military contingencies emanating out of the "collusive threat" from the military modernisation and aggressive actions by India's adversaries, the

Defence Ministry said on Saturday, in an apparent reference to China and its all-weather ally Pakistan. It also said the Army is primarily focused on maintaining its operational preparedness in sync with India's desire to ensure stability and dominance along the Line of Actual Control (LAC), and Line of Control (LoC) while constantly monitoring and reviewing emerging threats to national security. The Defence Ministry mentioned this in a year-end review.

Referring to the situation along the LoC (with Pakistan), it said the situation has been relatively peaceful with both Indian and Pakistani armies observing ceasefire understanding since February last year. "As compared to 4,645 ceasefire violations during its peak in 2020, only three minor incidents have been recorded since the understanding in February 2021 with only one incident during 2022," the ministry said.

It said Pakistan continued to retain "proxy war infrastructure" and that the "functionality" of terrorist training camps, presence of terrorists in "launch pads" and continuing infiltration attempts vindicate that country's "persistent intent". It said Pakistan continues to exploit the "narco-terror nexus" to radicalise and motivate innocent youth undertake targeting of vulnerable civilians using pistols and grenades.

On its brief on the Army, the ministry said it primarily focused on maintaining its operational preparedness in line with India's desire to ensure "stability and dominance along the Line of Actual Control, Line of Control". It said the Army carried out relentless counter-insurgency and counter-terrorist operations and maintained high training standards while constantly monitoring and reviewing emerging and future threats to national security.

"The Indian Army remains prepared for all military contingencies emanating out of the collusive threat from the military modernisation and aggressive actions by the country's adversaries while, creating capacities to deal with emerging threats in cyber, space and info domains due to blurring of physical borders," it said. There have been concerns in the military establishment over possible challenges emanating from the "collusive threat" from China and Pakistan.

On reforms in the military, the ministry said all formations of the Indian Army will be structured on an Integrated Battle Group (IBG) model in a phased manner to transform the force into a leaner and agile Army. "IBG-isation is progressing well and Phase 1 is near completion."

Under the IBG initiative, the Army aims to integrate different components of the force into the new formation that will feature artillery guns, tanks, air defence and logistical elements.

On the situation along the border with China, the ministry said Chinese PLA troops on December 9 tried to transgress the LAC in Yangtse area of Tawang sector and unilaterally change the status quo. Referring to Defence Minister Rajnath Singh's statement in Parliament on the incident, it said he informed that the Chinese attempt was contested by Indian troops in a "firm and resolute manner". Mentioning the eastern Ladakh row, the ministry said talks are being scheduled to discuss disengagement in the "balance friction" areas in the region. "With diplomatic and military efforts, effective disengagement with PLA forces was achieved from the area of PP 15 (Eastern Ladakh) in September," it said. The ministry noted that this disengagement was carried out almost a year after the previous exercise which was effected from Gogra in August 2021.

"As part of the engagement mechanism, a total of 16 rounds of Corps Commander Level Meetings and 12 related Working Mechanism for Consultation and Coordination meetings have been held till date and subsequent talks are being scheduled to discuss disengagement in the balance friction areas in Eastern Ladakh," it said. About reform initiatives in the services, the

ministry said that studies on the establishment of theatre commands were carried out at the service headquarters level for enhancing operational preparedness and synergising capability and combat potential of the armed Forces during war and peace. "A number of decisions taken on restructuring are being implemented in a satisfactory manner," it said.

On the situation along the LAC, the ministry said Pakistan's attempts this year to push in terrorists have resulted in 12 infiltration attempts being eliminated. It noted that 18 foreign terrorists were eliminated in these attempts and large quantities of arms and ammunition were recovered. The ministry also listed the successful test firing of the extended range version of the Brahmos missile, and the launch of the Prithvi-II missile, Agni-4 and Agni-3 missiles. It also mentioned the successful test of the submarine-launched ballistic missile INS Arihant as well as the indigenously-developed helicopter-launched anti-tank guided missile 'Helina'.

<https://www.indiatoday.in/india/story/indian-army-prepared-for-military-contingencies-says-govt-2310446-2022-12-17>

THE TIMES OF INDIA

Mon, 19 Dec 2022

Amid LAC Tension, India Using Naval Assets for Land Border Surveillance

India now is regularly using naval reconnaissance capabilities to boost its surveillance of land borders with China, both to monitor troop build-ups as well as infrastructure upgrades, amid heightened tensions along the Line of Actual Control (LAC).

The Navy is deploying P-8I long-range patrol aircraft and heavy-duty Sea Guardian drones "as and when tasked" on the Army's request for intelligence-gathering missions along the northern borders, defence ministry sources told TOI on Sunday.

The US-origin P-8I aircraft and Sea Guardians, both of which are capable of providing 'live feeds' of high-resolution imagery with their electro-optic and other advanced sensors, supplement the ongoing use of satellites and the Israeli Heron unmanned aerial vehicles (UAVs).

The naval platforms have been used both in the western (Ladakh) and eastern (Sikkim, Arunachal) sectors of the 3,488-km LAC. While India and China have kept around 50,000 soldiers each forward deployed for the third successive winter in eastern Ladakh, there has been a further spike in tensions in the eastern sector after the physical clash between the rival soldiers at Yangtse in the Tawang sector of Arunachal Pradesh on December 9.

"The P-8Is and Sea Guardians, meant for long-range ISR (intelligence, surveillance, reconnaissance) missions over the high seas, have proved quite effective in supplementing the Army's information on the People's Liberation Army," a source said. China has shown no inclination to de-escalate and restore the status quo in eastern Ladakh as it existed in April-May 2020, and has used the last 30 months to further strengthen its military positions and border infrastructure. The Navy currently has 12 P-8I aircraft, acquired from the US for \$3.2 billion, which are deployed at INS Hansa at Goa and INS Rajali at Arakkonam (Tamil Nadu) for ISR missions on the western and eastern seaboard. Primarily meant for hunting enemy submarines,

the P-8Is are armed with Harpoon Block-II missiles, MK-54 lightweight torpedoes, rockets and depth charges. They have an operating range of 1,200 nautical miles with "four hours on station".

The Navy also has two unarmed MQ-9B Sea Guardian drones, variants of the iconic armed Predators, on lease from US firm General Atomics from September 2020 onwards. With a maximum range of 5,500 nautical miles and an endurance of 35 hours, these drones have proved very effective in ISR missions over the Indian Ocean Region. India also has a long-standing plan to acquire armed MQ-9B drones from the US. But the proposed deal's high cost at \$3 billion (Rs 24,000 crore) for 30 drones (10 each for Navy, IAF and Army) has led to a rethink on the number of drones to be acquired, as reported by TOI earlier.

<https://timesofindia.indiatimes.com/india/amid-lac-tension-india-using-naval-assets-for-land-border-surveillance/articleshow/96326329.cms>

The Tribune

Sun, 18 Dec 2022

Navy's Submarine Project gets New Deadline

The Navy's project to construct six next-generation conventional submarines has been further delayed. A source said the Project 75 India (P 75I), under which six submarines had to be constructed, would be unable to meet its December 31 deadline. It has been allowed an extension till the middle of 2023. It is learnt that "more time" has been allowed to companies to submit their bids to the request for proposal (RFP). An RFP is part of the tendering process to elicit financial and technical bids.

One of the reasons for allowing the extension is India's insistence on the fuel cell technology-based air independent propulsion (AIP). India wants an operational AIP before it inks the contract. Barring two foreign manufacturers, other three are still in the process of operationalising their AIP technologies. The AIP technology allows the submarine to remain submerged for almost 8-10 days otherwise they have to surface to charge their batteries after 4-5 days, making them vulnerable to enemy satellites. Indian submarine action plan that was announced in 1999 spoke about having 24 modern submarines by 2030. So far, the Navy has around 16.

The next generation submarines will have advanced torpedoes, modern missiles and state-of-the-art countermeasure systems. The project has seen many ups and downs. It was in 2007 that the Defence Acquisition Council of the Ministry of Defence accorded the acceptance of necessity (AoN), the first of the many procurement steps. In 2014, a high-level committee was set up to identify which Indian shipyards had the capability to make such a vessel.

A formal request for information was issued in 2017 under the strategic partnership model. This allows an Indian shipyard to have a tie-up with a foreign manufacturer to make a submarine in India. In June 2021, an RFP was sent out to two Indian submarine makers: Mazagaon Dockyard Limited, Mumbai, and Larsen & Toubro.

<https://www.tribuneindia.com/news/nation/submarine-project-gets-new-deadline-462338>

‘BEL Committed to Make in India Initiative’

Bharat Electronics Limited's (BEL) Machilipatnam unit is manufacturing night vision devices as there is a great demand for them, director of the PSU, PV Parthasarathi said and added, “Due to high demand, we want to expand production capacity. One more unit is coming up at Nimmaluru in the Krishna district. The one at Palasamudram in Satya Sai district is much bigger than expected and it is called an integrated complex for defence systems.

He further asserted that (BEL) is committed to implementing the Make in India programme and that 99% of the material used at its manufacturing units is indigenous. The Central government-owned firm is now manufacturing 350 pieces of defence equipment for the needs of the Indian armed forces. While DRDO (Defence Research and Development Organisation) develops 50% of the total products, BEL develops the remaining equipment. Parthasarathi explained, speaking to reporters here, he said the Nimmaluru plant will use advanced technology to manufacture night vision devices. New employment opportunities will be created and local development will happen as many ancillary units are expected to come up along with the BEL unit.

In South India, the PSU has a presence in Bengaluru, Hyderabad, Chennai, and in Machilipatnam and Palasamudram of Andhra Pradesh. Asserting that the Centre is keen on developing Andhra Pradesh at different levels, he said the establishment of defence manufacturing units in the State proves it. Stating that BEL acquired 914 acres for setting up a missile manufacturing and radar testing facility at Palasamudram in 2016, he said the project could not take off due to various reasons. As all the issues have been resolved now, the BEL’s investment committee has decided to release Rs 384 crore for the construction of the first phase of the facility, he pointed out.

New unit to come up in Palasamudram

BEL on Saturday had sanctioned Rs 384 crore under phase one towards the construction of a unit at Palasamudram in Satya Sai district. Besides manufacturing missiles and testing radar, it will develop the facility as a defence system integrated with complex for defence systems.

<https://www.newindianexpress.com/states/andhra-pradesh/2022/dec/19/bel-committed-to-make-in-india-initiative-2529593.html>

THE TIMES OF INDIA

38 Defence Staff Pursue Research Work at Andhra University

Perhaps a first for any state university of India, Andhra University has given PhD admissions to 38 Air Force, Navy, and Army officers in research areas like strategic studies, military psychology, defence technology, international relations, strategic management, etc. These Flag and Senior Officers, who are pursuing their research at AU, are holding ranks such as Air

Marshal, Air Vice Marshal, Air Commodore, Rear Admiral, Group Captain, Colonel, Captain, etc. in different wings of Indian Armed Forces. A few retired defence officers, who are currently holding General Manager and above positions with various public sector undertakings and government organisations, have also enrolled in PhD programme.

The university is availing the services of former Deputy National Security Advisor and IFS officer Arvind Gupta as one of the guides for the research programme. Rajni Vama, an ex-Air Force officer and DRDO scientist, has been enlisted as another guide for the research specialisation in Aviation Psychology. Former DGM of Hindustan Salts Limited and adjunct professor of defence studies Dr Ujjwal Kumar Ghatak has been made a research guide in the area of strategic management and defence studies.

The prominent defence personalities, who have enrolled in PhD programme, include Air Marshal Sujeet Pushpakar Dharkar who is Commanding-in-Chief of Eastern Air Command, Air Marshal (retired) Mannepalli Baladitya, Rear Admiral KS Noor who is former Command Education Officer of Eastern Naval Command, etc. Speaking TOI, AU vice-chancellor Prof PVGD Prasad Reddy explained how Andhra University's relations with defence forces has cemented over the years, deriving several MoU and new-age courses that have been tailor made for the defence personnel. "The PhD programme introduced for the Armed Forces turns out to be challenging work for the conventional faculty. While on one way it helps in building brand image of the university and facilitates knowledge transfer by way of reverse mentoring, from people with heavy practical exposure in various critical and security-related missions. However, the problem definition, methodology, and structuring of the work do require some academic mentoring from an institution like AU," said Prof Reddy. Colonel Mani Kumar, who is pursuing his research work in international affairs pertaining to India-China and India-Sri Lanka relations, said he was convinced that the research programme would further enrich and hone his knowledge and career.

Rear Admiral KS Noor has chosen the 'importance of Sainik Schools for enrolling officers in defence forces' as his research topic. He is curating and collating data from the Sainik Schools spread over the globe, with a special attention to India and the United States.

https://m.timesofindia.com/city/visakhapatnam/38-defence-staff-pursue-research-work-at-au/amp_articleshow/96313173.cms



Fri, 16 Dec 2022

Loitering Munitions: Powerful Battlefield Enabler, now Integrated into Greater Strategy of War

By Air Marshal Anil Chopra

Kamikaze drones and loitering munitions have been very effectively used in the Ukraine war and have begun to define the future of warfare? Earlier, they have been used in Afghanistan, Syria, and Yemen, but only in the year 2020, in the Nagorno-Karabakh war, did they come into the limelight in a contested environment for the first time.

One of the military support packages announced by White House for Ukraine included 100 tactical switchblade loitering munitions. The videos going viral of direct hits on tanks and other ground vehicles indicate tactical successes. However, to draw correct lessons, there is a need to understand the technology and employment dynamics.

Origin of loitering munitions

Loitering munitions trace their origin to the dawn of the jet age. Surface-to-Air Missiles (SAM) paired to radars proved devastating to jet aircraft. The loitering munitions were borne out of a desire to counter this new weapon – SAMs. By removing the pilot from the anti-missile aircraft, the designers of loitering munitions reduced the risk of human harm in seeking out these weapons. By expanding the flight time, the loitering munitions could look for both known and unknown missile installations. On their own, loitering munitions would clear an area of anti-air threats. Combined with following aircraft, the loitering munitions allowed jet fighters to retain their utility, without needing to be stealthy from launch.

Loitering munitions are peculiar

Loitering munitions are a combination of a drone and a missile, more like “loitering missiles.” They are mostly one-time-use expendables that find and finally hit the target. Loitering munitions enable faster reaction times against concealed or hidden targets that emerge for short periods without placing high-value platforms close to the target area, and also allow more selective targeting as the attack can easily be aborted.

The target search could be autonomous, using its own airborne sensors or by a human in the loop at a ground or air station. Some more advanced and expensive drones could be recalled or recovered in case not used. One way to understand loitering munitions is as a kind of airborne mine. Like land or naval mines, these anti-radar loitering munitions are an explosive placed into an environment for selective attack and target destruction. Unlike ground or marine based mines, which can remain in place for long durations of time, loitering munitions are limited by their flight time, though some loitering munitions can land inert and then be refueled for future flights. They thus have lessor humanitarian issues.

The loitering munitions could be launched from an elaborate ground station, an airborne platform, or be a small discreet, man-portable weapon. Depending on the size, the loiter time could vary. Very large ones, like the Israel Aircraft Industry (IAI) Harop operated by Indian Air Force (IAF) could loiter for 8-9 hours and small ones as used in Ukraine could loiter for 30-60 minutes.

Loitering munitions evolve

Loitering munitions got more evolved in the 1980s and saw Israeli Delilah variants. The late 1980s IAI Harpy was the first loitering munitions widely exported, and also bought by the Indian Air Force. The Americans had the AGM-136 Tacit Rainbow which was often termed more as a UAV. They were used for Suppression of Enemy Air Defences (SEAD) roles against SAMs, and were deployed for the SEAD role in a number of military forces in the 1990s.

Starting in the 2000s, loitering weapons have been developed for additional roles ranging from relatively long-range strikes. IAI Harop was one such system. Later were developed smaller, tactical fire support, very short range battlefield systems that could fit in a backpack.

They could fly, loiter, search and identify a target using their own sensor, hit a target like a missile, and were expendable. The sensors could be radar, thermal imaging, or visual sensor data. Loitering munitions could be as small as a model airplane or a little longer. Typically fixed-wing, and powered by pusher propellers, they could resemble everything from matchsticks with wings to a large bird of prey. Artificial intelligence, combined with the use of sophisticated sensors, is now allowing increasing levels of autonomy. Alternatively a human could select the target and order its destruction. Developments in communications technology, computing, processing, and miniaturized sensors means that loitering munitions can now serve a range of functions in war once reserved for crewed aircraft or artillery. The requirement for human approval can easily be removed with minor technical upgrades to the system. Some have called them a cheap anonymous suicide drones. Historically, loitering munitions were used to target things like radars but are increasingly being used to attack tanks, combat assets, vehicles and even humans. As modern weapon systems are becoming increasingly autonomous in their capabilities, they pose risks and ethical questions.

Comparison – cruise missile, loitering munitions and UCAV

Cruise missiles, loitering munitions and unmanned combat aerial vehicle (UCAV) are often compared. While cruise missiles, such as the block IV Tomahawk, have the ability to loiter and have some sensory and remote control features, but cruise missiles primary mission is typically a predesignated strike. Cruise missiles are optimized for long-range flight at constant speed. Most UAVs could be fitted with improvised explosives and then piloted to crash onto a target. However the primary mission of a UAV and UCAV is to carry reconnaissance and/or drop munitions and return back to land.

UAVs are noisy when diving, potentially providing warning to the target. They are often costly, and can't be expended. The primary mission of a loitering munition is reaching the suspected target area, target acquisition during a loitering phase, followed by a self-destructive strike. These are optimised with very short engine life, silent strike phase, and speed during strike dive. Their other strength is loitering time instead of range/speed, and are relatively cheaper.

Loitering munitions in operations

Azerbaijan used the Harop to destroy Armenian air defence systems and armoured vehicles in a conventional mechanised conflict. The induction and operational success of loitering munitions is considered by some as a game-changing technology. The US, has committed to sending a total of 700 AeroVironment Switchblades to Ukraine. The smaller ones weighing just 2.5 kilograms cost as little as \$6,000 a munition, are man-portable, with 10 kilometre range, and are good for soft skin vehicles. The heavier ones weigh closer to 25 kilograms, take longer to assemble, have longer range close to 40 kilometres, and can pierce tank armour. The US has also promised to send Puma reconnaissance drones, counter-drone systems, and naval drones to Ukraine, as well as the 'Phoenix Ghost Tactical Unmanned Aerial System'.

121 Phoenix Ghost drones were to be provided to Ukraine, and reportedly have similar capabilities to the Switchblade drone with a longer loitering capability and infra-red sensors. More and more countries are making their own loitering munitions.

Ukraine appears to be also using the Polish Warmate drone, which can operate conventionally as a surveillance drone or be equipped with explosives to become a loitering munition. Russians too have their loitering munitions, the Lancet, which is an autonomous system, was successfully

employed in Syria in 2021. It is not clear if the same has been deployed in Ukraine. Russians also have the Zala Kyb loitering munitions that have been used in Ukraine to attack fixed sites. There have also been claims that loitering munitions, operating autonomously, may have been used in combat in Libya. Turkish-manufactured Kargu-2 drone had reportedly engaged Libyan National Army logistics convoys and retreating forces during conflict in 2020.

Limitations of loitering munitions

Finite flight time is the first limitation. The accuracy of attack is dependent on the sensors. Sensors can have errors or could be degraded by enemy action or jamming. Weather can affect optical systems. The wars are abrupt, irregular, and targets could change or be moved. The on-board computers could be fooled. By feeding misleading data to a known loitering munition, an adversary could direct it to crash away from its target, even possibly returning deadly to where it was launched. On board GPS could also be jammed or signal denied. More than any other weapon, with the possible exception of swarming drones, autonomy is vital to how loitering munitions work. Any international or regulatory regime that governs autonomy will profoundly change what types of loitering weapons can be designed in the future.

Impact on war

Based on initial assessment, the loitering munitions have made significant cost effective impact on war. It has brought in new dynamics. Top attack on tanks, convoys, mobile-command posts or even fuel dumps and similar other targets would have devastating effect and will require their reengineering.

Both the smaller man-portable and larger Israeli munitions have a clearly designated military role. These could supplement the strikes by long-range artillery and the air strikes. They also add fire-power in addition to the more expensive Javelin class of anti-armour weapons. In fact, these have begun questioning the invincibility of the battle tank.

The 'fire and forget' weapons are operating with a high degree of autonomy. Being much smaller, the loitering munitions would be difficult to locate or be targeted. They will also be immune to the large air defence systems. They will thus be important elements of the multi-domain operations. Loitering munitions have democratised the battle-field with small combat teams holding new weapons. These would have to be factored by military planners and the doctrines.

Part of greater war strategy

Loitering munitions are a powerful battlefield enabler providing faster reaction times when engaging concealed targets that emerge for short periods. Loitering munitions are now integrated into the greater strategy of the war. For countries that cannot afford stealth aircraft, the ability to take out anti-air missile batteries with expendable radar-seeking drones is powerful and likely more affordable.

Once loitering munitions remove anti-air defences, then fighter attack aircraft can take-on other heavy equipment, tanks, and other targets with relative impunity. A modest technological advantage has turned into a major strategic benefit. While land and sea mines need clearing after the war, loitering munitions do not have any humanitarian angles to contend.

Nations possessing loitering munitions

Many countries are already manufacturing loitering munitions. These include China, Israel, Iran, Russia, Taiwan, Turkey, and the United States. Countries like India, Azerbaijan, Germany, and South Korea have bought them from the major manufacturers. China recently conducted a test involving swarming loitering munitions, deployed from a box array of launcher tubes on a tactical vehicle.

It is possible to modify the existing drones into loitering munitions. The cost and size make it possible to scale these for smaller military formations. Grenades can also be slung beneath a quadcopter with cameras to make attacks on forces behind cover. China also operates IAI Harpy, but also has its own CH-901, WS-43, and ASN-301.

India's indigenous loitering munitions are being built by DRDO. Also a private sector company EEL, a subsidiary of Solar Group Nagastra 1 with 1.5 kg payload and 15 km range is ready. Nagastra 2 with 4 kg warhead and 25 km range has also been tested successfully. Nagastra 3 with a 15 kg warhead and 100 km range is under development. ALS-50, the soon to be inducted loitering munitions are developed by Tata Advanced Systems. Z motion of Bangalore has made Trinetra precision guided hand launched tactical attack UAV. India has already inducted Elbit Systems SkyStriker tactical loitering munitions for covert and precise airstrikes.

The United States Army recently tested new loitering munitions as part of an advanced warfighting exercise called Edge 21. Raytheon was awarded a contract for the Autonomous Swarm/Strike – Loitering Munitions. Experts say \$98 billion will be spent worldwide over the next decade on new UAV intelligence gathering and strike capabilities.

PLA Air Force (PLAAF) and the army are investing in, and developing loitering munitions. New Chinese loitering munitions showcased at the Thailand Defence and Security 2022 exhibition in August 2022. The FH901 on display was advertised as 9 kilograms with a warhead of 3.5 kilograms. It is equipped with an electro-optical and infrared gimbaled seeker and can be controlled by the operator via line of sight data link at the advertised distance of 15 kilometres.

The FH901 is canister-launched and has an advertised flight time of over 60 minutes with sustained speeds of 100-150 kilometres per hour. The FH901 shares the terminal dive profile akin to other systems like the Harop and can reach a terminal velocity of 288 km/h.

Way ahead for India

There is great action evolving in loitering munitions. They will be a cost effective force multiplying game-changer. India's private sector is well equipped to develop these as a part of the drone culture and revolution already under way in India. Some critical components of the loitering munitions are still not manufactured in India. These are already in the cross-hairs of Drone Federation of India, which has galvanised the manufacturers to develop indigenous technologies. Time to act is now, lest we get left behind.

<https://www.firstpost.com/opinion/loitering-munitions-powerful-battlefield-enabler-now-integrated-into-greater-strategy-of-war-11819821.html>

India, Bangladesh Play Significant Role in Ensuring Security of Region: B'desh Air Force Chief

India and Bangladesh have a pivotal role to play in ensuring the security of the region, Chief of Bangladesh Air Force Air Marshal Shaikh Abdul Hannan said here on Saturday. Speaking as the chief guest at the Combined Graduation Parade of Flight Cadets of various branches of the Indian Air Force, Hannan said both the countries have an "umbilical connection" and that relation has been more profound since the Bangladesh liberation war in 1971. "Both the countries have a significant role to play in ensuring the security of the region and our defence forces conduct regular joint exercises to ensure that we have synergy in our efforts," he said.

Noting that Bangladesh Air Force was born in Dimapur in India on September 28, 1971, the air force chief of the neighbouring country said with that heritage today both the countries have an understanding of mutual trust and respect. "India and Bangladesh have an umbilical connection. This connection has been more profound since the Bangladesh liberation war in 1971. This makes me to recall invaluable contribution of India as a whole and Indian Air Force in particular in 1971 war of liberation," he said.

Offering advice to the passing out cadets, Hannan said in this technology driven world, air and space power will play a key role in 21st century warfare and will continue to do so in the future. According to him, currently and also in times to come, the world will face many security challenges that could be effectively countered by continuously upgrading and improving the technological capabilities. "In order to stay ahead of time and be well prepared for the growing requirements, strategies should be dynamic, flexible and updated. It is in this context that the Indian Air Force stands to derive maximum benefit from the young and innovative minds that can take on the challenges, professional and competent manner, he said. The Bangladesh Defence official said the IAF is keeping pace with the changing environment and has improved the training curriculum recently to train resilient, dynamic and field ready officers.

<https://economictimes.indiatimes.com/news/defence/india-bangladesh-play-significant-role-in-ensuring-security-of-region-bdesh-air-force-chief/articleshow/96295734.cms>

Japan Vowed to Increase Security Spending to 2% of GDP by 2027, Reshape its Military Command, and Acquire New Missiles

Japan's government approved a major defence policy overhaul on Friday, including a significant spending hike, as it warned China poses the "greatest strategic challenge ever" to its security. In

its largest defence shake-up in decades, Japan vowed to increase security spending to 2% of GDP by 2027, reshape its military command, and acquire new missiles that can strike far-flung enemy launch sites. Japan's government approved a major defence policy overhaul on Friday, including a significant spending hike, as it warned China poses the "greatest strategic challenge ever" to its security.

In its largest defence shake-up in decades, Japan vowed to increase security spending to 2% of GDP by 2027, reshape its military command, and acquire new missiles that can strike far-flung enemy launch sites. Prime Minister Fumio Kishida told a news conference he was "determined to remain resolute in our mission to protect and defend the nation and its people, at this turning point in history".

"In our neighbouring countries and regions, the strengthening of nuclear missile capabilities, rapid military build-up and attempts to unilaterally change the status quo by force have become even more pronounced," he said, evoking Russia's invasion of Ukraine as an example of the changing times. Polls suggest Japan's public largely backs the shift, but the changes could still be controversial because Japan's post-war constitution does not officially recognise the military and limits it to nominally self-defensive capabilities. The moves are outlined in three defence and security documents approved by the cabinet on Friday. They describe Beijing as "the greatest strategic challenge ever to securing the peace and stability of Japan", as well as a "serious concern" for Japan and the international community.

In response, the government plans to raise its defence spending to 2% of GDP by fiscal 2027, bringing Japan in line with NATO member guidelines. That marks a significant increase from historic spending of around 1% and has sparked criticism over how it will be financed. The money will fund projects including the acquisition of what Japan calls "counterstrike capacity" — the ability to hit launch sites that threaten the country. The documents warn that Japan's current missile interception systems are no longer sufficient, and Mr. Kishida said counterstrike capacity "will be essential in the future". While Japanese governments have long suggested that counterstrikes to neutralise enemy attacks would be permissible under the constitution, there has been little appetite to secure the capacity.

That has shifted with the continued growth of Chinese military might and a record volley of North Korean missile launches in recent months, including over Japanese territory. Still, in a nod to the sensitivity of the issue, the documents rule out preemptive strikes and insist Japan is committed to "an exclusively defence-oriented policy". "Japan's adherence to the three non-nuclear principles, the exclusive defence policy and its progress as a peaceful nation will remain unchanged," Mr. Kishida said on Friday. The counterstrike capacity will involve both upgrading existing Japanese weaponry but also buying U.S.-made Tomahawk missiles, reportedly up to 500. Other changes include the establishment of a permanent joint command for Japan's armed forces as well as enhancement of its coastguard. Core army troops in the southwestern islands will be doubled, and logistics strengthened "to enable the rapid deployment of troops from all over Japan" in an emergency, Mr. Kishida said. Among the documents is the National Security Strategy, which is being updated for the first time since its 2013 launch. Its language on relations with both China and Russia has hardened significantly. The strategy document previously said Japan was seeking a "mutually beneficial strategic partnership" with Beijing, a phrase that has disappeared from this iteration. Instead it suggests a "constructive and stable relationship" and better communication. And while Japan's strategy document once called for enhanced ties and

cooperation with Russia, it now warns that Moscow's military posturing in Asia and cooperation with China are "a strong security concern".

China's Foreign Ministry urged Japan on Friday to "reflect on its policies".

"Japan disregards the facts, deviates from the common understandings between China and Japan and its commitment to bilateral relations, and discredits China," ministry spokesman Wang Wenbin told reporters. However, the White House said the overhaul would "strengthen and modernise" Japan's military alliance with the United States. The strategy contained in the documents represents a major evolution of Japan's military posture, according to Chris Hughes, professor of international politics and Japanese studies at the University of Warwick. "The Japanese government will depict these changes as necessary, moderate and wholly in line with previous defence posture," he told AFP.

Still, "they are going to, in the words often used by the (ruling) Liberal Democratic Party itself in policy documents, 'radically strengthen' Japan's military power", said Hughes, author of the book "Japan as a Global Military Power".

<https://www.thehindu.com/news/international/japan-approves-major-defence-overhaul-warning-of-china-threats/article66271454.ece>



Sat, 17 Dec 2022

'Military Build-up Doomed to Fail', says China on Japan's New Security Policy

After Japan unveiled a new national security plan that signals the country's biggest military buildup since World War II, China on Friday said that hyping up the threat posed by Beijing to back its military build-up "is doomed to fail."

"Hyping up the China threat to find an excuse for its military build-up is doomed to fail," Chinese Foreign Ministry Spokesperson Wang Wenbin said during a regular press conference on December 16. "Japan's new defence policy ignores facts, deviates from its commitment to China-Japan relations and the common understandings between the two countries, and groundlessly discredits China's defence building and normal military activities. China resolutely opposes this and has made serious demarches to the Japanese side through diplomatic channels," he said.

Japanese media said the new strategies outlined in three defence and security documents approved by Japan's cabinet on Friday are a marked departure from post-WWII norms. Most notably, they involve doubling defence spending over the next five years to 2 per cent of GDP in fiscal 2027, Japan's Kyodo News reported.

Tokyo also plans to build its "counterstrike capacity" and acquire long-range cruise missiles that can reach well inside North Korea and China. It will also reorganize its military, establishing a permanent joint command for its armed forces, enhancing its coast guard, and doubling its core army troops in the southwestern islands.

Chinese spokesperson Wang said that the Japanese side in particular needs to be prudent on the Taiwan question, honour its commitments and refrain from sending wrong signals.

"China's position on maritime issues is consistent and clear. The Japanese side has been allowing right-wing forces to cause trouble in the East China Sea, and has colluded with certain countries to hype up and even create tensions in the South China Sea," he added.

Meanwhile, US National Security Advisor Jake Sullivan praised Japan's new national security and defence strategies on Friday, saying they will also support the US-Japan alliance.

"Today, Japan has taken a bold and historic step to strengthen and defend the free and open Indo-Pacific with the adoption of its new National Security Strategy, National Defence Strategy and Defence Buildup Program," Sullivan said in a release. "Japan's goal to significantly increase defence investments will also strengthen and modernize the US-Japan Alliance."

Sullivan also praised Japanese Prime Minister Fumio Kishida's commitment to international peace, nuclear non-proliferation, and his leadership, including support for Ukraine.

<https://www.aninews.in/news/world/us/military-build-up-doomed-to-fail-says-china-on-japans-new-security-policy20221217031734/>

अमर उजाला

Sun, 18 Dec 2022

Russia: रूस ने तैनात की दुनिया की सबसे खतरनाक मिसाइल, दुनिया के किसी भी कोने में भेद देगी अपना लक्ष्य

रूस ने यूक्रेन पर मिसाइल से आक्रमण करके उसको पूरी तरह से तबाह कर दिया, शायद ही कोई यूक्रेन में बड़ी इमारत हो जो रूस की मिसाइल का शिकार न हुई हो। वहीं अब रूसी रक्षा मंत्रालय ने शनिवार को बताया कि रूस ने अंतरमहाद्वीपीय हाइपरसोनिक एवनगार्ड मिसाइल सिस्टम को ऑरेनबर्ग क्षेत्र में तैनात कर दिया है, इस मिसाइल को लेकर रूस का दावा है कि यह दुनिया के किसी भी कोने में अपना टार्गेट मात्र 30 मिनट में भेद सकती है।

रूसी रक्षा मंत्रालय ने कहा कि हाइपरसोनिक ग्लाइड वाहन के साथ मिसाइल प्रणाली रूसी सामरिक मिसाइल बल की लड़ाकू क्षमताओं को बढ़ाएगी। रूसी ने दावा किया कि, एवनगार्ड हाइपरसोनिक मिसाइल आवाज की गति से 27 गुना ज्यादा की हाइपरसोनिक गति से उड़ान भरने में सक्षम है। यह दिशा और ऊंचाई में मार कर सकती है और किसी भी मिसाइल रक्षा प्रणाली को पीछे छोड़ सकती है।

इस हाइपरसोनिक मिसाइल की 33076 किलोमीटर प्रतिघंटा है। एवनगार्ड मिसाइल का वजन करीब 2000 किलोग्राम है। वहीं एवनगार्ड मिसाइल करीब 10 किलोमीटर की दूरी एक सेकेंड में

पार कर सकती है। रक्षा मंत्रालय के मुताबिक 20 डिग्री सेल्सियस तापमान और हवा में नमी नहीं है तो यह और बेहतर मार कर सकती है।

इससे पहले अप्रैल में, रूसी सामरिक मिसाइल बलों के कमांडर सर्गेई काराकेव ने कहा था कि नवीनतम रूसी सरमत अंतरमहाद्वीपीय बैलिस्टिक मिसाइल (आईसीबीएम) को कई एवनगार्ड हाइपरसोनिक ग्लाइड वाहनों के साथ तैनात किया जा सकता है। रूसी रक्षा मंत्रालय ने कहा था कि उसने साइलो लॉन्चर से सरमत मिसाइल का सफल परीक्षण किया है। साथ ही मंत्रालय ने कहा था कि इसकी उड़ान के सभी चरणों में डिजाइन विशेषताओं की पुष्टि की गई थी।

सर्गेई काराकेव ने कहा कि एवनगार्ड के विकास से हाइपरसोनिक हथियारों में बेहتری आई है। वहीं रूस को छोड़कर दुनिया के किसी अन्य देश के पास आज युद्ध ड्यूटी पर इस तरह का हथियार नहीं है। वहीं यूक्रेन पर रूस ने हाइपरसोनिक मिसाइल दागी थी। रूस ने यूक्रेन पर अपनी दूसरी हाइपरसोनिक मिसाइल किंज़ालसे इस साल मार्च में हमला किया था।

<https://www.amarujala.com/world/russia-has-deployed-the-intercontinental-avangard-hypersonic-missile-system>



Fri, 16 Dec 2022

Ukraine War: Russia to Deploy ‘Mach 27’ Avangard Hypersonic Missiles that can ‘Outmaneuver’ Any Defense System

The Commander of the Russian Strategic Missile Forces, Sergey Karakayev, announced that the Avangard missile system would enter service with the missile regiment of the Yasny military formation on December 17, state news agency TASS reported. “Another missile regiment will be introduced into service in the Yasny military formation for the anniversary of our Strategic Missile Forces – now with the Avangard missile system,” Karakayev said on Russian TV on December 15.

The Avangard can move and outpace any missile defense while traveling at a hypersonic speed of Mach 27, or about 32,000 kilometers/hour, as Moscow claims. The system was publicly unveiled by Russian President Vladimir Putin in 2018 and has since been projected as the cornerstone of the country’s hypersonic capabilities. Earlier this month, a Russian military analyst Alexei Leonkov, who spoke to RIA Novosti, said that it was impossible to predict Avangard’s flight path or produce a missile with a speed that could match the Avangard.

He claimed thwarting Avangard would be an impossible task. He was responding to Japan’s decision to develop an anti-missile system that could intercept maneuvering hypersonic missiles. The introduction of Avangard into the Strategic Missile Force is significant as it is a hypersonic glide vehicle that can be fired by various ICBMs, including the country’s newest and most

advanced intercontinental ballistic missile, the RS-28 Sarmat. Karakayev also stated that the RS-28 Sarmat heavy intercontinental ballistic missile (ICBM) would become the mainstay of Russia's heavy silo-based missile force in the foreseeable future. Sarmat can simultaneously transport 15 light nuclear warheads. One rocket may hit numerous targets simultaneously because these warheads are organized as Multiple Independently Targetable Reentry Vehicles (MIRVs).

Earlier this year, the Commander had said, "Concerning Sarmat, it is another missile system. It is based on a launcher and is much more powerful than Avangard's launcher. It has also been designed for Avangard, taking into account that the number [of Avangards] on this system [Sarmat] could be more."

Russia has consistently claimed that it is developing hypersonic weapons so that its strategic forces can outperform any future American air and missile defenses. The Avangard glides through the atmosphere, relying on reentry to accelerate to its peak speed. It is reportedly capable of making dynamic flying maneuvers to evade detection. While the Avangard is set to enter service on December 17, Russia wasted no time loading a second Yars missile into a launcher sending a clear message to its adversaries across the border and in the West.

Another Yars Goes Into The Launcher

The second Yars intercontinental ballistic missile was put into a silo launcher in the Kozelsky missile formation in the Kaluga region, local Russian media reported. The rocket was installed using a special transport-loading unit, and the complex technological operations lasted several hours. "Another intercontinental ballistic missile Yars has been loaded into a silo launcher. In the missile regiment, planned measures are being taken to re-equip with a new missile system. The regiment's personnel has undergone several stages of training and is ready to perform tasks as intended," said Alexei Novikov, chief of the missile regiment.

Earlier, on December 14, the Russian Defense Ministry released a video showing the installation of a Yars intercontinental ballistic missile (ICBM) into a missile silo, as reported by EurAsian Times. The first Yars installation into the silo was also conducted at the Kozelsky missile formation in the Kaluga region, which lies southwest of Moscow. At the time, the Russian media had emphasized that the unit was diligently working to create a new infrastructure that provides better conditions for staff leisure, combat duty execution, and duty force training. A similar assertion was made at the installation of the second Yars missile. According to reports, the Kaluga-based Yars missile complex has a carrying capacity 12 times greater than the American atomic bomb that destroyed Hiroshima on August 6, 1945. The Yars missile could be ready to fire in seven minutes from a prepared location, a specially designed garage with a sliding roof, or an unprepared position during field deployment.

The missile's warheads are all in a single stage that separates from the rest of the weapon after launch in a traditional MIRV configuration. Once beyond the Earth's atmosphere, this system can autonomously navigate and fire each warhead over a single target.

Russia has been projecting its strategic capabilities in the run-up to the December 17 Strategic Missile Forces Day. While it has indulged in nuclear brinkmanship earlier in the conflict, President Putin clarified in October that he wouldn't use nuclear weapons in Ukraine.

<https://eurasianimes.com/russia-goes-full-throttle-with-its-strategic-missile-forces/>



Fri, 16 Dec 2022

EU Defence Agency Chief: Europe Cannot Rely on U.S. Alone as Shield

European Union states should buy arms jointly to replenish stocks after supplying Ukraine, said the bloc's defence agency, warning the United States may not always be able to shield Europe from threats. "The Russian war of aggression against Ukraine demonstrates our capability shortfalls," said Jiri Sedivy, chief executive of the European Defence Agency, an EU body that helps the bloc's governments to develop their military capabilities. The agency was in talks with European arms firms about boosting production, he said, as well as with countries about clubbing together to buy equipment and ammunition. "What is important is that we would be able, the European Union, to become a credible provider of security in protecting citizens," he told Reuters, urging countries to heed U.S. calls to invest in defence. "The United States will be inevitably engaged in Asia Pacific and not be able to provide some of the essential enablers such as strategic airlift, reconnaissance aircraft, precision-guided missiles and air defences." He pointed also to the threat of terrorism and failed states in the Middle East or North Africa.

Europe has had a splintered approach to defence, with countries mostly equipping their military on their own, spawning a patchwork of incompatible weapons and equipment. The war in Ukraine has confronted the region with its biggest challenge in a generation, exposing deep rifts in how to deal with Moscow. Tens of thousands of people have been killed, millions more displaced and cities reduced to rubble since Russia invaded Ukraine on Feb. 24 in a "special military operation" that Kyiv and its allies call it an unprovoked war of aggression. European defence spending topped 200 billion euros for the first time in 2021, rising 6% on the previous year, the strongest since the region started boosting military expenditure in 2015 following Russia's annexation of Crimea from Ukraine. Without U.S. help, the EU would struggle to defend itself, lacking intelligence, reconnaissance aircraft and medium-range missile defence as well as amphibious ships and submarines, according to a 2020 report by the European Parliament.

<https://www.reuters.com/world/europe/eu-defence-agency-chief-europe-cannot-rely-us-alone-shield-2022-12-16/>



Sat, 17 Dec 2022

China's 'Most Powerful' Carrier Group Enters West Pacific for Drills amid Japan's Breakaway from Defense-only Principle

The aircraft carrier Liaoning of the Chinese People's Liberation Army (PLA) Navy, featuring a record number of Type 055 10,000 ton-class large destroyers as its escorts, reportedly sailed

across the Miyako Strait and entered the West Pacific for routine exercises on Friday, the same day that Japan broke away from its defense-only postwar principle and announced plans to equip itself with first attack-capable missiles, allowing itself to hit China.

As the most powerful Liaoning aircraft carrier group yet, the PLA flotilla is expected to host a number of realistic combat-oriented exercises beyond the first island chain, enhancing its capabilities in safeguarding national sovereignty, territorial integrity and development interests, military experts said. Japan's Maritime Self-Defense Force spotted a PLA Navy flotilla consisting of the aircraft carrier Liaoning, the Type 055 large destroyers Anshan and Wuxi, the Type 052D destroyer Chengdu, the Type 054A frigate Zaozhuang and the Type 901 comprehensive replenishment ship Hulunhu sailing from the East China Sea through the Miyako Strait into the West Pacific from Thursday to Friday, Japan's Ministry of Defense Joint Staff said in a press release on Friday.

Before this, from Monday to Thursday, Japan also reported that the Type 055 large destroyer Lhasa, the Type 052D destroyer Kaifeng and the Type 903A replenishment ship Taihu have sailed from the East China Sea through the Osumi Strait into the West Pacific, and that a PLA Navy electronic reconnaissance vessel with hull number 796 and the Sovremenny-class destroyer Taizhou has sailed from the East China Sea through the Miyako Strait into the West Pacific.

It is not known if all of the above-mentioned vessels are actually parts of the carrier group, but the record-breaking number of 10,000 ton-class Type 055 large destroyers could mean that this is the most powerful configuration of the Liaoning carrier group yet, observers said. Previously, there had only been one Type 055 featured in the group, and this time it is up to three.

The Liaoning aircraft carrier group is apparently on a routine training exercise, in which vessels within the group will practice coordinated moves and joint operations, and carrier-based fighter jets will practice takeoffs and landings, Song Zhongping, a Chinese military expert and TV commentator, told the Global Times on Friday. Song said that Type 055 large destroyers are the best escorts of Chinese aircraft carriers, and it is also possible that the Liaoning carrier group also has nuclear-powered submarines in it. Drills like this have already become normal and regular, Song said. In May this year, the Liaoning aircraft carrier group held a far sea exercise in the West Pacific, to the east of the island of Taiwan and south of Japan. With over 300 aircraft sorties in some 20 days, the mission marked the longest and most sortie-intensive exercise by the Chinese carrier in the region.

Friday, the day when the Liaoning carrier group sailed through the Miyako Strait, also happens to be the day when Japan adopted a national security strategy declaring plans to possess preemptive strike capability and cruise missiles within years to give itself a more offensive footing against "threats" from China, AP reported on the day, calling the move a major break from its strictly self-defense-only postwar principle. Facing Japan's continued attempts to revise its defense strategies and expand its armed forces, the PLA needs to enhance its combat readiness to deal with possible emergencies, Song said. "Our exercises are not aimed at any third party, but if a third party poses threats to China, then it must feel the exercises are targeting it," Song said. The PLA will resolutely safeguard China's sovereignty and territorial integrity, and stop other countries from interfering in the Taiwan question, Song said.

<https://www.globaltimes.cn/page/202212/1282043.shtml>

Science & Technology News



Press Information Bureau
Government of India

Ministry of Science & Technology

Fri, 16 Dec 2022

Union Minister Dr Jitendra Singh says, Indian Students will Compete for Guinness Book of Records and Seek to Create Two New World Records in the Upcoming India International Science Festival (IISF)-2022 to be held in Bhopal from 21st to 24th January 2023

Two Guinness Book of World Records attempts will be conducted among the four activities of Agribot (Solar), Home automation, Beehive honey extraction and Fibre to Fabric at IISF

Apart from Biotech and Agri-tech Start-ups, the festival will also display smart and knowledge toys made by local artisans at IISF to make them popular at global level: Dr Jitendra Singh

Union Minister of State (Independent Charge) Science & Technology; Minister of State (Independent Charge) Earth Sciences; MoS PMO, Personnel, Public Grievances, Pensions, Atomic Energy and Space, Dr Jitendra Singh today said that Indian students will compete for Guinness book of Records and seek to create two new world records in the upcoming India International Science Festival (IISF)-2022 to be held in Bhopal from 21st to 24th January 2023. The Minister informed that in IISF 2022, two Guinness Book of World Records attempts will be conducted among the four activities of Agribot (solar), Home automation, Beehive honey extraction and Fibre to Fabric. The IISF-2022, 8th in the series of such festivals, is being held at Maulana Azad National Institute of Technology (MANIT), Bhopal, MP on 21 to 24 January 2023. About 5,000 invited delegates and 10,000 local visitors are expected to attend this Festival every day.

Chairing a Steering Committee meeting with all the Science Secretaries and Principal Scientific Advisor along with senior officials of Madhya Pradesh Government through online mode, Dr Jitendra Singh informed that registration for India International Science Festival IISF- 2022 have been started through the website www.scienceindiafest.org. Taking a cue from Prime Minister's inauguration of "The India Toy Fair-2021", a first-of-its-kind initiative that aims to bring together all stakeholders of the Indian toy industry on a virtual platform to create sustainable linkages and promote dialogue for the holistic development of the industry, Dr Jitendra Singh said, all steps will be taken for creating Indian Brand for Rural Toy Industry. He said, apart from Biotech and Agri-tech Start-ups, the festival will also display smart and knowledge toys made by local artisans at IISF to make them popular at global level.

Dr Jitendra Singh said, The Festival provides a platform to young students, scientists and technocrats from across India for exchange of knowledge and ideas in alignment with the flagship programmes like 'Swachh Bharat Abhiyan', 'Swasth Bharat Abhiyan', 'Make in India', 'Digital India', 'Smart Villages', 'Smart Cities', 'NamamiGange' and 'Unnat Bharat Abhiyan' initiated by the Prime Minister Shri Narendra Modi.

The Proposed events of IISF-2022 came in for a detailed review in the meeting. The Proposed events are Students Science Village, Face to face with New Frontiers of Science & Technology, Science through Games & Toys, Students Innovation Festival, Vaigyanika (Literature), International Science Film Festival, Guinness World Records attempts, Artisan's Technology Village-Vocal for Local, Young Scientist Conclave, New Age Technology Show, NSOIM, STEM @ 2022-Mega Science and Technology Exhibition, Start-up Meet, S&T Council Conclave.

Dr Jitendra Singh said, IISF has evolved progressively through its innovative design of programs and activities connecting various aspects of life to science. The number of participants from India and abroad has grown steadily with every edition and the journey is on involving more and more people to attain the desired outcome. The Minister said, the participation of Department of Space (DoS) and the Department of Atomic Energy (DAE) in supporting IISF is an added attraction this year.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1884206>



Press Information Bureau
Government of India

Ministry of Science & Technology

Sat, 17 Dec 2022

Union Minister Dr Jitendra Singh Announces the Launching of CSIR's "One Week, One Lab" Countrywide Campaign from 6th January, 2023

Each of the 37 premier Laboratories/Institutes of CSIR spread across the country will, one after the other in every successive week, showcase their exclusive innovations and technological breakthroughs to the people of India

"One Week One Lab" theme-based campaign is expected to ignite the minds of young innovators, students, academia, and industry to look for opportunities through deep tech Start-ups ventures" The Minister addresses the 200th Governing Body Meeting of CSIR in New Delhi; announces Special Call for Research Grant Proposals for Women Scientists. Dr Jitendra Singh says, will soon write to Union Minister for Education Shri Dharmendra Pradhan and all the Chief Ministers of States to evolve a mechanism for wider sharing of CSIR technological breakthroughs and innovations in schools. The Minister launches the new tagline of the organisation, "CSIR-The Innovation Engine of India"

Union Minister for Science & Technology, Dr Jitendra Singh, who is also the Vice President of CSIR (Council of Scientific & Industrial Research), today announced the launching of "One

Week, One Lab" countrywide campaign from 6th January, 2023. In this, each of the 37 premier Laboratories/Institutes of CSIR spread across the country will, one after the other in every successive week, showcase their exclusive innovations and technological breakthroughs to the people of India. Addressing the 200th Governing Body Meeting of CSIR at the Science Centre in New Delhi, Dr Jitendra Singh said, the "One Week One Lab" theme-based campaign is expected to ignite the minds of young innovators, students, Start-ups, academia, and industry to look for opportunities through deep tech ventures.

Dr Jitendra Singh recalled that Prime Minister Narendra Modi, who is President of the Council of Scientific and Industrial Research (CSIR), had chaired the meeting of CSIR Society on 15th October, 2022 and appreciated the efforts of CSIR in the past 80 years.

The Prime Minister had urged CSIR in the Society meeting to develop a vision for 2042 when CSIR turns 100 years old and also highlighted the significance of documenting the journey of the past 80 years, which can help take a review of progress achieved and identify areas of lacunae which can be addressed. He also suggested that a virtual summit of all labs can be held regularly in which they can learn new things from each other's experience.

At the 200th Governing Body Meeting of CSIR today, Dr Jitendra Singh announced a Special Call for Research Grant Proposals for Women Scientists. The call for research grant proposal is for women scientists including those who have taken a career break and are interested in returning to research and reestablishing their career. Keeping in tune with the transformations happening in CSIR, the Minister of Science and Technology also released the new tagline, "CSIR-The Innovation Engine of India". The implementation of paperless E-office across all labs with effect 01 April 2023 and E-performance appraisal system for admin cadre staff for Reporting Year 2022-2023 was also approved.

Dr Jitendra Singh informed the Governing Body Members that he will soon write to Union Minister for Education Shri Dharmendra Pradhan and all the Chief Ministers of States to evolve a mechanism for wider sharing of CSIR technological breakthroughs and innovations in schools for students and aspirants who want to pursue fundamental science and research as a strong career option. Dr Jitendra Singh said, the legacy of CSIR is built on the cumulative contribution of its several national laboratories and institutes. He said, each laboratory of CSIR is unique and specializing in as diverse areas as genomics to geology, material technology to microbial technology and food to fuel. Dr Jitendra Singh called upon a pool of over 4,500 CSIR scientists to reorient and revitalize the organization to emerge as Global Centers of Innovations in the Amrit Kaal. He said, they must focus on emerging innovations in areas like Hydrogen in the energy transition, Carbon capture and storage, Accessible solar power, Plastic recycling and Cheap energy storage. Dr N Kalaiselvi, Director General, CSIR gave a presentation on CSIR activities and achievements from the 199th to the 200th GB meetings.

Members of the present GB include Prof Ajay Sood, PSA to the Government of India; Dr Samir V Kamat, Secretary, DoD and Chairman, DRDO; Gurdeep Singh, Chairman and Managing Director, NTPC; Dr Srinivasa Reddy, Director, CSIR-IICT; Dr N Anadavalli, Director, CSIR-SERC; Finance Secretary and Secretary (Expenditure); Shri Baba A Kalyani, Chairmand & MD, Kalyani Group; Prof K VijayRaghavan, Former PSA to GoI; Dr Vijay Bhatkar; Dr K N Vyas, Secretary, DAE and Chairman, AEC and Dr N Kalaiselvi, DG-CSIR.

Dr Jitendra Singh said, CSIR breakthroughs in areas like Drone, Heliborne technology, state of the art Sewage cleaning machines, Aroma Mission has opened up huge opportunities for

developing meaningful and equal stake partnership among Research, Academia and Industry. The Minister said, the state-of-the-art Heli-borne survey technology with cooperation from Jal Shakti Ministry was applied last year in States of Rajasthan, Gujarat, Punjab and Haryana and this could play an important role in positively contributing to Prime Minister Narendra Modi's Vision and Mission of "Har Ghar Nal Se Jal". Similarly, the mechanized sewage cleaning system developed by CSIR for wider dissemination will help in achieving the target of Swachh Bharat Mission, he added. CSIR was established on 26 September 1942 and was registered as a CSIR Society under the Societies Registration Act, 1860. The first meeting of the Governing Body was held on 09 March 1942 that framed the Bye Laws for the Council amongst other agenda items.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1884418>



Press Information Bureau
Government of India

Ministry of Science & Technology

Sat, 17 Dec 2022

An Innovative, Green, Novel Antimicrobial Air Filtration Technology can Mitigate Air-borne Infection

A newly developed air filter can deactivate the germs 'self-cleaning' them out of the system using ingredients commonly found in green tea. Impure air might make our life shorter, to the extent that Indians lose 5-10 years of their lives because of air-borne contaminants leading to respiratory diseases, adversely affecting physical health as well as mental health according to a report by University of Cigaco. A research team led by Prof Suryasarathi Bose and Prof Kaushik Chatterjee at Indian Institute of Science, Bengaluru (IISc), Bangalore, developed germ-destroying air filters that can inactivate germs using ingredients like polyphenols and polycationic polymers commonly found in green tea. These 'green' ingredients rupture the microbes through site-specific binding.

The research was supported by special grants from Science & Engineering Research Board (SERB) during the challenging COVID-19 pandemic and SERB-Technology Translation Awards (SERB-TETRA) funds and a patent has been filed on this. Over continuous usage, the existing air filters become a breeding ground for captured germs. The growth of these germs clog the pores of the filter, reducing the life of the filters. Resuspension of these germs can infect people in the vicinity. The novel antimicrobial air filters were tested at the NABL Accredited Laboratory and were found to deactivate SARS-CoV-2 (delta variant) with an efficiency of 99.24%. This technology was transferred to AIRTH, a startup that is replacing the existing germ-growing air filters with germ-destroying air filters for commercialization.

As this innovation holds promise to develop antimicrobial filters that can prevent endemics caused by air-borne pathogens, a patent was granted in 2022. These novel antimicrobial filters in our ACs, central ducts and air purifiers can play a crucial role in our fight against air pollution and mitigate the spread of air-borne pathogens like coronaviruses.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1884361>



Press Information Bureau
Government of India

Ministry of Science & Technology

Sun, 18 Dec 2022

Union Minister Dr Jitendra Singh says, India has Jumped from 7th to 3rd Global Ranking in Scientific Publications. Lauds the Consistent Efforts of India's Scientific Fraternity and Gives All Credit to an Enabling Milieu and Freedom of Working Provided by Prime Minister Narendra Modi

At a review meeting of DST senior officials, Dr Jitendra Singh informs that India also now ranks 3rd in terms of number of PhDs in science and engineering

As per the National Science Foundation-2022 report of the United States, India's scholarly output increased from 60,555 papers in 2010 to 1,49,213 papers in 2020

DST is likely to get 20 percent more money in the upcoming Union Budget 2023-24 in comparison to last year

India has jumped from 7th to 3rd global ranking in scientific publications. This was disclosed here today by Union Minister for Science & Technology, Dr Jitendra Singh after a review with Union Secretary Department of Science & Technology (DST) Dr S. Chandrasekhar. Lauding the consistent efforts of India's scientific fraternity, Dr Jitendra Singh gave all credit to an enabling milieu and freedom of working provided by Prime Minister Narendra Modi. He said, the very fact that such quantum leaps in our scientific pursuits are happening only in the last few years is a testimony to the push given by PM Modi both in terms of the ease of policy as well as his personal indulgence and prioritisation.

Dr Jitendra Singh informed that as per the National Science Foundation (NSF)'s Science & Engineering Indicators 2022 report of the United States, India's position globally in scientific publications, has improved from 7th position in 2010 to 3rd position in 2020. He also added that India's scholarly output increased from 60,555 papers in 2010 to 1,49,213 papers in 2020.

Dr Jitendra Singh said, this became possible only because of Prime Minister Narendra Modi, who not only has a natural predilection for science but is also forthcoming in supporting and promoting science and technology based initiatives and projects in the last 8 years. He said, India's scientific prowess is going to have a major role in the making of "AtmaNirbhar Bharat".

Dr Jitendra Singh said, India's research performance in science and technology has improved significantly over the past few years which is visible through large amount of scientific knowledge in terms of research publications, development of technologies and innovations contributing to overall development.

Dr Jitendra Singh also took pride that India now ranks 3rd in terms of number of PhDs in science and engineering. He was also apprised of the fact that the number of patents granted to Indian scientists at India Patent Office (IPO) during the last three years has also increased from 2511 in

2018-19 to 4003 in 2019-20 and 5629 in 2020-21. The National Science Foundation is an independent agency of the United States government that supports fundamental research and education in all the non-medical fields of science and engineering. It may be recalled that as per the Global Innovation Index (GII) 2022 brought out by World Intellectual Property Organization (WIPO), India's GI ranking has also improved significantly from 81st in 2014 to 40th position in 2022.

Dr Jitendra Singh said, the government has taken several steps to boost the science and technology sector which includes successive increase in allocations for Scientific Departments, incentivizing investment by private sector to increase their share in GERD, improving the ease of doing business in the Science, Technology and Innovation (STI) activities; introducing flexible tools for public procurement; creating avenues for collaborative STI funding through portfolio-based funding mechanisms such as Public-Private-Partnerships and other innovative hybrid funding mechanisms. A senior official informed that the Department of Science and Technology is likely to get 20 percent more money in the upcoming Union Budget 2023-24 in comparison to last year. In the last budget, DST received Rs 6,002 Crore, which was 42 percent of the total fund of Rs 14,217 Crore allocated to the Ministry of Science and Technology. DSIR received Rs 5,636 Crore (40%), while DBT got Rs 2,581 Crore (18%).

The Government has allowed corporate sector to make R&D investments under the provision of Corporate Social Responsibility (CSR). Corporates can invest in technology business incubators or contribute in research efforts carried out by institutions and national research laboratories as a part of their CSR. There are specific investment incentives offered such as Location-based tax incentives that enables 100% deductions of profits generated from establishing and doing business in northeastern states of India.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1884582>



Sat, 17 Dec 2022

Karnataka Sericulture Institute Working with DRDO to Make Silk Blankets for Jawans

To ensure that Indian soldiers posted on borders and cold regions are warm and safe, researchers at Karnataka State Sericulture Research and Development Institute (KSSRDI) are working with the Defence Research and Development Organisation (DRDO) to make blankets using silk as the inner material, instead of polypropylene. Normally, blankets (razai) have cotton or polypropylene or polyester inside them which makes them heavy. Under the trials being conducted, the blankets being made from silk will not only make them lighter, but will also have additional electrical circuits to keep them warm in minus 18 degrees Celsius in cold places like the Siachen Glacier. A Jambunath, in-charge registrar and chief scientist at silk division of KSSRDI, told The New Indian Express that trials began a year ago and it will be a reality soon. The institute is also training individuals, especially women and startups, to make them self-reliant.

While each blanket would cost the DRDO around Rs 45,000-50,000, for citizens, the price will range from Rs 3,000 to Rs 30,000. The institute is working on making premium quality silk blankets for the defence personnel for which one and half kg of silk is used as filling.

K'taka makes 11K-12K MT of silk a year

For citizens, the weight of the silk used as filling will start from 700 grams as some other materials will also be used. “The reason why silk is being used is because it keeps one more warm when compared to other materials. It needs little or no maintenance and can be washed easily. It is easy to carry, is eco-friendly and also helps in generating employment in rural areas,” Jambunath said.

Karnataka produces 11,000-12,000 metric tonnes of silk per annum, of which 20 per cent is waste. The researchers use 10-15 per cent of the waste material from spun silk and hand spun silk to make blankets. “A large quantity of silk from Ramanagara and other parts of the state was being sent to China for the same purpose. At present, silk exported to China is being imported back to India in the form of blankets via Korea and Brazil markets. This is also a developing industry which we want to explore. But as a government body, we cannot venture into commercial operations,” explained another official.

<https://www.newindianexpress.com/states/karnataka/2022/dec/17/karnataka-sericulture-institute-working-with-drdo-to-make-silk-blankets-for-jawans-2529013.html>



Sun, 18 Dec 2022

IIT Delhi ने बनाया सियाचिन में तैनात जवानों के लिए कवच, माइनस 60 डिग्री तापमान में भी कारगर होगी यह जैकेट

हाइलाइट्स

सियाचिन के लिए सेना का नया कवच

1200 डिग्री तापमान से बचाने वाली जैकेट

भारतीय सेना को लगातार सुविधाओं से लैस किया जा रहा है और इसमें न सिर्फ बड़ी कंपनियां बल्कि एजुकेशनल संस्थान और छात्र भी अपना योगदान दे रहे हैं. हाल ही में, भारतीय प्रौद्योगिकी संस्थान (IIT) दिल्ली ने भारतीय सेना और अग्निशमन कर्मचारियों के लिए दो एकदम अलग-अलग जैकेट तैयार की हैं.

सेना के जवानों के लिए सियाचिन जैसे इलाकों में झूटी के दौरान खून जमाने वाली ठंड से बचाने वाली जैकेट तो वहीं, अग्निशमन कर्मियों के लिए हाई टेम्प्रेचर से बचाने वाली जैकेट बनाई है. आज हम आपको बता रहे हैं इन जैकेट्स की खासियत.

सियाचिन के लिए सेना का नया कवच

सियाचिन में ठंड से लड़ने के लिए IIT दिल्ली ने जो कवच बनाया है वह जवानों को सियाचीन जैसे दुर्गम इलाकों में बर्फ के प्रकोप से बचाएगी. दांत किटकिटाने वाली ठंड में ये जवानों के चेहरे पर मुस्कान का मुहैया मौका कराएगी. इस जैकेट को IIT दिल्ली के छात्रों ने बनाई है.

इस जैकेट की खासियत की बात करें तो यह जैकेट जवानों को माइनस 60 डिग्री तापमान से बचाने में सक्षम है. सबसे अच्छी बात है कि यह जैकेट दुनिया की सबसे हल्की जैकेट है. जैकेट में थर्मल इंसुलेटर का उपयोग किया गया है. जैकेट में तीन लेयर है, पहली लेयर बर्फीली हवाओं से बचाएगी तो बीच की लेयर थर्मल इंसुलेटर है और सबसे अंदर की लेयर जवानों को किसी भी तरह के इन्फेक्शन से बचाएगी.

1200 डिग्री तापमान से बचाने वाली जैकेट

IIT दिल्ली ने रक्षा अनुसंधान एवं विकास संगठन (DRDO) के साथ मिलकर लगभग दो किलोग्राम की फायर प्रूफ जैकेट भी बनाई है. संस्थान का दावा है कि यह जैकेट 1200 डिग्री तापमान में 15 से 20 सेकंड तक इंसान की सुरक्षा कर सकती है। यदि तापमान इससे कम हो तो अधिक समय तक कारगर होगी.

बताया जा रहा है कि जैकेट कम कीमत और वजन के कारण अग्निशमन कर्मियों के लिए अहम साबित होगी. इस जैकेट की टेस्टिंग कर ली गई है और फील्ड ट्रायल के बाद इसे आगे इंडस्ट्री को ट्रांसफर किया जाएगा.

<https://www.gnttv.com/india/story/iit-delhi-invented-special-jacket-soldiers-posted-siachen-and-fire-proof-jacket-485147-2022-12-18>

Chennai-Based MSME, ST Advanced Composites Makes Overall Structure of UAE's First Lunar Mission - Rashid Rover

Demonstrating its expertise in R&D and manufacturing of advanced materials, STAC, a Chennai based MSME, won the contract to make the structural parts of UAE's first lunar Mission When Rashid Rover "the first-ever rover of United Arab Emirates" put its legs on the surface of the moon in a matter of hours after emerging from the chest of Hakuto-R, the Japan-made lander. Onboard SpaceX's Falcon 9 rocket that took off from Florida, USA on December 11, it will mark the fruitful completion of a two-year long arduous efforts of ST Advanced Composites (STAC), a Chennai MSME of innovative composite parts that was entrusted with the task of the manufacturing and supply of the rover's structural parts. The rover's Chennai connection should also lift the spirit of India's Make in India movement in the defence and aerospace industry, and the hopes of the country becoming a global manufacturing hub for aerospace products in near future. Weighing a little less than 10 kg, Rashid Rover is the Arab world's first lunar rover, conceived by Mohammed bin Rashid Space Centre, UAE's national space agency. Considering that the weight, strength, and reliability of materials that go into making the rover's structure is crucial for the success of its lunar mission, the space agency scouted across the world to identify a company that has the necessary expertise, before signing the contract with STAC. Now that the rover is about to complete its 385,000 km journey to start crawling on the moon's surface for months to identify the presence of water and the planet's test soil conditions, STAC has a strong case to prove its mettle in making innovative composite parts. Talking about the company's expertise and the Rashid Rover project, Dr. Devendran Thirunavukarasu, Director, STAC, explained, "We make parts in advanced composite materials such as metallic and carbon fibre mainly for defence and aeronautical industries. We have done projects for ISRO and DRDO, besides a few global space tech companies, including one in the UK. However, making Rashid's structure proved to be a demanding project. Our research and design focus helped us win the confidence of UAE and provide end to end solutions for them to their extreme satisfaction. In space missions, we are talking about materials that are at least 10 times lighter and 5 times stronger than steel. We built the rover's structures using magnesium alloy, carbon fibre, and aluminium. We are happy that the customer is extremely happy with our work. We hope to keep building on our strength and contribute towards indigenization of the local defence and space industry, while also tapping export opportunities."

STAC is a full-service of the composites manufacturer providing engineered composite products for various industries. Founded in 2014, the company has energetic and young team comprising specialists in offering design assistance, material selection consultation and manufacturing advanced composite materials using natural, glass, carbon, and Kevlar fibres. It has emerged as a comprehensive one-stop composites shop with an on-site manufacturing facility that meets design requirements from start to finish, meeting production schedules.

<https://www.ptinews.com/pti/Chennai-Based-MSME--ST-Advanced-Composites-Makes-Overall-Structure-of-UAE-s-First-Lunar-Mission---Rashid-Rover/59031.html>

