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अमर उजाला

Fri, 06 Jan 2023

डीआरडीओ ने विकसित किया अनमैन्ड एरियल व्हीकल, चीन के खिलाफ बढ़ेगी सेना की ताकत

भारत और चीन (India China Tension) की सेनाएं लंबे समय से सीमा पर तैनात हैं और दोनों देशों के बीच तनाव बना हुआ है। इस तनाव के बीच भारत के लिए अच्छी खबर सामने आई है। दरअसल डिफेंस रिसर्च एंड डेवलपमेंट ऑर्गेनाइजेशन यानी कि डीआरडीओ (DRDO) ने अनमैन्ड एरियल व्हीकल (UAV) विकसित करने में सफलता हासिल कर ली है। इस यूएवी के विकसित होने से भारतीय सेना (Indian army) को हिमालय क्षेत्र में लॉजिस्टिक ऑपरेशन चलाने में बड़ी मदद मिलेगी। यह अनमैन्ड एरियल व्हीकल 5 किलो भार लेकर उड़ान भर सकता है और साथ ही जरूरत पड़ने पर दुश्मन के ठिकानों पर बमबारी भी कर सकता है।

बीते दिनों नागपुर में आयोजित हुई 108वीं इंडियन साइंस कांग्रेस में इस यूएवी को प्रदर्शित किया गया था। फिलहाल डीआरडीओ ने इस मल्टी कॉप्टर पेलोड के सिक्किम में 14 हजार फीट की ऊंचाई पर सफल ट्रायल किए हैं। दो और ट्रायल के बाद इस यूएवी को आर्म्ड फोर्सिस में शामिल कर लिया जाएगा। डीआरडीओ के अधिकारी महेश साहू ने यह जानकारी दी। उन्होंने बताया कि डीआरडीओ द्वारा विकसित यह यूएवी 5 से लेकर 25 किलो क्षमता का भार लेकर उड़ान भर सकता है। इस क्षमता को बढ़ाकर 30 किलो किए जाने पर काम चल रहा है।

इस यूएवी की विशेषता की बात करें तो यह 5 किलोमीटर दूर से तय जगह पर अपने आप पेलोड रिलीज कर सकता है और अपनी तय लोकेशन पर वापस आ सकता है। यह बिना किसी मानवीय क्षति के दुश्मन के ठिकानों पर बमबारी भी कर सकता है। इस पेलोड का इस्तेमाल ऊंचाई वाले युद्ध क्षेत्र में जवानों के लिए दवाई पहुंचाने के लिए भी किया जा सकता है। साथ ही यह यूएवी लैंडिंग एक्यूरेसी के साथ ही ग्राउंड व्हीकल फॉलो मोड और मॉड्यूलर डिजाइन से लैस है, जिससे युद्ध के दौरान यह यूएवी काफी उपयोगी साबित हो सकता है।

रेट साइबोर्ग बना रही यंग साइंटिस्ट लेबोरेटरी की टीम

डीआरडीओ की यंग साइंटिस्ट लेबोरेटरी की एक टीम खुफिया निगरानी और सुरक्षा बलों के रिकवरी ऑपरेशन में मदद के लिए रेट साइबोर्ग बना रही है। एक अधिकारी ने यह जानकारी दी। यंग साइंटिस्ट लेबोरेटरी के निदेशक पी. शिवप्रसाद ने यहां विश्व विज्ञान कांग्रेस के एक सत्र को संबोधित किया। इसके बाद

गुरुवार को उन्होंने कहा रेट साइबोर्ग के सिर पर कैमरे लगे होंगे और इलेक्ट्रॉनिक कमांड का उपयोग करके उन्हें निर्देशित किया जाएगा।

उन्होंने कहा, यह पहली बार है जब भारत इस तरह की तकनीक विकसित करने में लगा है। कुछ अन्य देशों के पास यह पहले से ही है। यह खुफिया निगरानी और रिकवरी ऑपरेशन में सशस्त्र बलों की मदद करेगा। पहल चरण के परीक्षण में रेट को कमांड के माध्यम से नियंत्रित किया जाएगा। दूसरे चरण में वैज्ञानिक वास्तव में रेट साइबोर्ग को ढूंढने के लिए सिर पर लगे कैमरे में छवियों को फीड कर सकते हैं। इसका इस्तेमाल 26/11 जैसे आतंकी हमले जैसी स्थिति में हो सकता है, जहां होटल में 200 से अधिक कमरे थे।

<https://www.amarujala.com/india-news/drdo-develop- unmanned-uav-bombing-logistic-benefits-himalayan-front-china-border-tension>

THE ECONOMIC TIMES

Fri, 06 Jan 2023

DRDO Develops Unmanned Aerial Vehicle for Operations in Himalayan Frontier

Aiming to improve logistics for operations in the Himalayas, India's Defence Research and Development Organisation (DRDO) has developed a untethered multi-copter payload, an unmanned aerial vehicle (UAV), capable of flying with a five kilo payload. Unveiled at the 108th Indian Science Congress in Maharashtra's Nagpur, the craft is capable of dropping bombs in enemy territories. According to DRDO officials, trials of the multi-copter were conducted at Sikkim at an altitude of 14,000 ft, with the product set to undergo two more trials before it is ready for induction in the Armed Forces. DRDO official Mahesh Sahu told PTI that the organisation is working on increasing the capacity of the UAV up to 30 kg.

The multi-copter can carry out autonomous missions with waypoint navigation up to 5 km radius, he added. The payload UAV can be helpful to drop medicines for soldiers deployed at high altitude or war zones, Sahu said. Beacon-based landing accuracy of 100 mm, ground vehicle follow mode and modular design for ease of operation are some of the other features of the multi-copter payload.

<https://economictimes.indiatimes.com/news/defence/drdo-develops-unmanned-aerial-vehicle-for-operations-in-himalayan-frontier/articleshow/96796845.cms>



Fri, 06 Jan 2023

DRDO Develops Unmanned Aerial Vehicles for Himalayan Border Operations

The Defense Research and Development Organization (DRDO) aims to conduct logistics operations on the Himalayan border with a tethered *multicopter* payload; an unmanned aerial vehicle (UAV) was developed.

The multicopter was exhibited by DRDO at the 108th Indian Science Congress in Nagpur, Maharashtra. A successful multicopter test was conducted in Sikkim at an altitude of 14,000 feet. DRDO official *Mahesh Sahu* said the product is ready for military deployment after his two remaining trials. DRDO is developing a multicopter with a payload capacity of 5kg to 25kg and is working to increase the capacity to 30kg, he said.

The multicopter can perform autonomous missions with waypoint navigation with a radius of up to 5 km. He said it could drive to a specific location in automatic mode, release the payload, and return to its home location. It could also be used to drop bombs on hostile locations without the risk of losing people, officials said.

Similarly, payload UAVs could help drop drugs on soldiers deployed in highlands and war zones, he said. A 100mm beacon-based landing accuracy, a ground vehicle following mode, and a modular design for ease of use are some of the other features of the Multicopter. Its payload.

This feat achieved by DRDO will provide an immense edge to Indian forces in hostile locations where countering the opponent puts lives of personnel at greater risk and where missions can be carried out better with discretion without putting the lives of soldiers at risk. The autonomous deployment will make this UAV seem straight out a sci-fi flick but with DRDO turning this project into reality will further enhance the prowess of Indian forces in mountain warfare and guerrilla warfare.

<https://www.timesnownews.com/auto/drdo-develops-unmanned-aerial-vehicles-for-himalayan-border-operations-article-96797417>

अमर उजाला

Sat, 07 Jan 2023

DRDO बना रहा खुफिया निगरानी के लिए रैट साइबोर्ग, 26/11 जैसे हमले में सुरक्षा बलों की करेगा मदद

मुंबई आतंकी हमले जैसे हालात में आतंकवादियों के कब्जे वाली जगहों के अंदर से सुरक्षा बलों के लिए लाइव वीडियो हासिल करने का काम अब 'रैट साइबोर्ग' के जरिए संभव हो सकेगा। इसे रक्षा अनुसंधान और विकास संगठन (डीआरडीओ) तैयार कर रहा है। यह सुरक्षा बलों को खुफिया निगरानी और रिकवरी अभियानों में भी मदद करेगा। रैट साइबोर्ग पर डीआरडीओ की प्रमुख अनुसंधान एवं विकास संस्था की युवा वैज्ञानिक प्रयोगशाला की एक टीम काम कर रही है।

ऐसे करता है काम

हैदराबाद में डीआरडीओ यंग साइंटिस्ट लेबोरेटरी के निदेशक पी शिव प्रसाद ने बताया कि रैट साइबोर्ग मानक प्रयोगशाला में तैयार एक कुतरने वाला जीव है, जिनके मस्तिष्क में वैज्ञानिकों ने एक इलेक्ट्रोड लगाया है, जो बाहर से संकेत प्राप्त कर सकता है। तस्वीरें लेने के लिए इसके सिर पर एक छोटा कैमरा भी लगा होगा।

ताज होटल जैसे तलाशी अभियान में बेहद उपयोगी

शिव प्रसाद ने कहा कि रैट साइबोर्ग की उपयोगिता को 26/11 के मुंबई हमले के संदर्भ में समझा जा सकता है। उस वक्त आतंकियों को ढूंढने के लिए सुरक्षाबलों को ताज होटल के 200 से अधिक कमरों की तलाशी

लेनी पड़ी थी। ऐसे काम के लिए अभी तक रोबोट की मदद भी ली जाती रही है, लेकिन इन्हें दीवारों पर चढ़ने और संकरी जगह की समस्या का सामना करना पड़ता है। वहीं, विभिन्न उपकरणों से लैस रैट साइबोर्ग कहीं भी जा सकता है, दीवार पर चढ़ सकता है और वेश बदलकर दुश्मन से छिप सकता है।

<https://www.amarujala.com/india-news/drdo-scientist-creating-rat-cyborgs-for-intelligence-surveillance-provide-live-video-feed-to-security-forces>



Sun, 08 Jan 2023

DRDO Developing 'Remote-Controlled' Mice to Rat on Enemy: Learn What Animal Cyborgs Are

The Indian armed forces may have 'remote-controlled' rats sneaking into enemy positions to get a look at it before troops strike during an operation, reports said. The Asymmetric Technologies lab, part of the Defence Research and Development Organization (DRDO), is working on animal cyborgs.

What is the Indian Project about?

The project, which began more than a year ago, is now in its second phase and the proof of concept is already in place, a report by *Times of India* said. This was discussed at the 108th Indian Science Congress during a plenary session on defence. P Shiv Prasad, director of the DRDO Young Scientist Laboratory Asymmetric Technologies, delivered the presentation.

What are animal cyborgs?

A living animal that has been surgically enhanced or modified with electronic or mechanical devices to give it certain additional capabilities is referred to as an animal cyborg.

These alterations may be intended to enhance the animal's natural abilities or to allow it to perform tasks that it would not normally be able to do.

Animal cyborgs have been used in research and practical applications such as military, search and rescue, and therapy. Some animal rights activists have expressed ethical concerns about the use of animal cyborgs, claiming that the modifications may cause unnecessary suffering to the animals or deprive them of their natural abilities.

What about the research in india?

The first phase has been completed in India. During this stage, electrodes were implanted through surgeries to control the movement of the rodents. The idea now is to place it in a non-invasive way, such as a head mounting. The goal is to keep the animal as comfortable as possible. Currently, there may be some discomfort following the surgery, The Times of India quoted the DRDO scientist, who gave the presentation, as saying.

The technology sends signals to the brains of the animals, causing them to turn, continue moving, or stop. These are essentially pleasure points in the nervous system that, when touched, allow for remote control of the animal.

For example, if the rat comes to a halt, the remote control can be used to nudge it forward, the TOI report explains. Rats are the best choice for the job because they can move faster, reach deeper corners, climb stairs, and even survive on waste food, according to the scientist.

These rodents are best used in cities. For example, in a situation similar to September 11, 2001, terrorists were holed up in a hotel and troops were unaware of their location. Other species can also be used to create animal cyborgs, he claims. He stated that the rats were already in the lab and that all ethical approvals had been obtained.

Where else have animal cyborgs been used?

Animal cyborgs are already on the market in developed countries such as China. Remote controlled beetles, like rats, have been developed.

According to a report in Wired, in 1994, the US Air Force proposed using "sex attractant chemicals for bugs" as weapons. A "sting/attack me" chemical that causes bees to attack could be "particularly effective for infiltration routes," according to the document. It also considered using "strong aphrodisiacs, particularly if the chemical also caused homosexual behaviour."

In a DARPA project, rats were fitted with "radios that transmit their brainwaves." The ultimate goal is to assist in the search for disaster survivors.

Other Examples

Military organisations have looked into the use of animal cyborgs for a variety of purposes, including bomb detection and enemy tracking. The United States military, for example, has funded research into the use of genetically modified insects outfitted with sensors and other electronic devices for intelligence gathering and surveillance.

Animal cyborgs have been used in search and rescue operations as well. Researchers at the University of South Carolina, for example, have developed a system that enables trained dolphins to locate and mark underwater mines using sensors and other devices attached to their bodies, reports said.

They have also been used in therapy, most notably with children with autism and other developmental disabilities. For example, the organisation "Warrior Canine Connection" trains service dogs to help veterans suffering from post-traumatic stress disorder (PTSD), and it employs a combination of traditional training methods and biofeedback technology to teach the dogs to recognise and respond to their handlers' emotional states.

They aid in collecting environmental data and monitoring the health of wildlife populations. Researchers, for example, have attached sensors and other electronic devices to migratory birds to track their movements and collect data on their behaviours and habitats.

Animal cyborgs have also been used in the entertainment industry, such as films and television shows. The Star Wars character "Chewbacca," for example, is a cyborg with electronic devices and mechanical parts integrated into his body.

<https://www.news18.com/news/explainers/drdo-developing-remote-controlled-mice-to-rat-on-enemy-learn-what-animal-cyborgs-are-explained-6785077.html>



Sat, 07 Jan 2023

1206 हैक्टेयर में परीक्षण केंद्र, एक वर्ष में टैस्टिंग शुरू होने की संभावना

श्योपुर। भारतीय रक्षा प्रणाली को मजबूत करने के साथ ही आम जन के लिए हितकारी प्रयोग सहित अन्य क्षमताओं का परीक्षण करने के लिए श्योपुर में बन रही भारतीय रक्षा अनुसंधान संगठन की राष्ट्रीय इकाई अब आकार लेने लगी है। 1206 हैक्टेयर में बन रही इस प्रयोगशाला और परीक्षण केन्द्र की बाउंड्री बनने लगी है और अगले सप्ताह निरीक्षण होने की संभावना है। सूत्र बताते हैं कि रक्षा आयुधों को लेकर वर्ष के आखिर तक यहां टैस्टिंग का काम शुरू हो सकता है।

दरअसल, डीआरडीओ हैदराबाद की एक यूनिट श्योपुर जिले की बड़ौदा तहसील और ग्वालियर जिले की मोहना नगर पंचायत क्षेत्र में बनाने के लिए कुछ वर्ष पहले स्वीकृति दी गई थी। रक्षा संबंधी उपकरण सहित अन्य उपयोगी उपकरण बनाने के लिए स्थापित होने वाली लैब के लिए जमीन आवंटन हो चुका है। अब यहां निर्माण कार्य शुरू किए जा रहे हैं। इससे पहले आवंटित भूमि को बाउंड्री बनाकर सुरक्षित किया जा रहा है। इसके बाद अन्य निर्माण कार्य होंगे।

होंगे प्रयोग और टैस्टिंग

देश और आम जन की सुरक्षा में महत्वपूर्ण भूमिका निभाने वाली डीआरडीओ प्रयोगशालाओं में मोहना और श्योपुर का स्थान भी महत्वपूर्ण रहेगा। निर्माण पूरा होने के बाद यह पूरा क्षेत्र विशेष संवेदनशील क्षेत्रों में शामिल रहेगा। इसके साथ ही आसपास होने वाले अवैध उत्खनन पर अपने आप लगाम लग सकेगी। प्रयोगशालाओं में आयुध प्रणाली से जुड़े महत्वपूर्ण कल-पुर्जों का निर्माण होगा।

यह हुआ अब तक

श्योपुर

जिले के बड़ौदा क्षेत्र के जाखदा जागीर में आवंटित 1206 हैक्टेयर जगह में बाउंड्री बन रही है। डीआरडीओ के अधिकारी लगातार मॉनीटरिंग कर रहे हैं। अगले सप्ताह काम की प्रगति को लेकर समीक्षा होगी। डीआरडीओ के अधिकारियों ने जिला प्रशासन से प्रयोगशाला के लिए अप्रोच बनवाने के लिए अनुरोध किया है।

मोहना

मोहना नगर पंचायत से लगे क्षेत्र उम्मेदगढ़ गांव के पास 100 हैक्टेयर जगह में काम शुरू हो रहा है। यहां भी बाउंड्री बनाने का काम शुरू किया जा चुका है। जिला प्रशासन के अधिकारी यहां की निगरानी करने के लिए लगातार विजिट कर रहे हैं। आसपास होने वाले अवैध उत्खनन पर लगाम लगाने के लिए भी कार्रवाई की जा रही है।

क्षेत्र की प्रगति में सहायक होगी लैब

जिले के सीमांत क्षेत्र में प्रयोगशाला का निर्माण होने से बड़ौदा तहसील मुख्यालय से करीब 25 किलोमीटर दूर स्थित जाखदा जागीर में प्रयोगशाला निर्माण होने के बाद निवेश बढ़ने की संभावना रहेगी। जंगल में बसे सुदूर गांवों में खेती के साथ-साथ वनोपज से संबंधित लघु उद्योग इकाइयों की स्थापना के अवसर बढ़ेंगे।

वर्सन

डीआरडीओ के लिए जिले की बड़ौदा तहसील मुख्यालय के जाखदा जागीर गांव में 1206 हैक्टेयर जगह आवंटित की गई थी। डीआरडीओ द्वारा अपने हिसाब से निर्माण आदि काम कराए जा रहे हैं। निर्माण कार्यों को लेकर डीआरडीओ को जो आवश्यकता होती है, उसको पूरा करने में हम मदद कर रहे हैं।

<https://www.patrika.com/gwalior-news/drdo-testing-center-in-1206-hectares-7965861/>



Sat, 07 Jan 2023

108th Indian Science Congress | DRDO's Session on 'Front Line Areas of Research in Strategic Sector'

The Defense Research and Development Organization (DRDO) under the Ministry of Defence has been the growth catalyst in India's development process post-independence. At the end of the first quarter of this century, DRDO's achievements in defence, space and technology sector has been remarkable which justifies its participation in the 108th edition of Indian Science Congress.

Technologies related to armaments and combat systems, electronics and communications, life sciences, naval systems, missiles are being displayed. Undoubtedly, DRDO is the major highlight at the Indian Science Congress (ISC), Nagpur.

DRDO held a plenary session on 'Front line areas of research in the strategic sector' on January 5, 2023 at ISC 2023. The session was chaired by Hari Babu Shrivastava, Director General, Technology Management, DRDO.

DRDO's advancement from Quantum to AI

According to the Global Innovation Index, India ranks 1st among the 9 major economies of Central and Southern Asia. PM Modi at the inauguration of the ISC also remarked, "In 2015 we were at 81st place in the Global Innovation Index of 130 countries, but in 2022 we have reached 40th place."

The recent advances and emerging research areas in asymmetric warfare, quantum, artificial intelligence, cyber physical systems and cognitive technologies were discussed during the DRDO plenary session. DRDO believes – "Innovation is the key to the future, but basic research is the key to future innovation," thus it proposed many research topics in Quantum Science and Technology such as Quantum imaging, Quantum communication, Quantum sensing etc.

Cyber physical systems (CPS) are engineered systems built from, and depend upon, the seamless integration of computation and physical components. Advances in CPS will enable capability,

adaptability, scalability, resiliency, safety, security, and usability that will expand the horizons of these critical systems. CPS technologies have application in domains like agriculture, aeronautics, building design, civil infrastructure, energy, environmental quality, healthcare and personalized medicine manufacturing, and transportation.

Unmanned aerial vehicle (UAV) for Himalayan operations

Interestingly, the DRDO has developed an untethered multi-copter payload, an unmanned aerial vehicle (UAV), with an aim to carry out logistic operations in the Himalayan frontier. The multi-copter was exhibited by DRDO at the 108th Indian Science Congress. It can carry out autonomous missions with waypoint navigation up to 5 km radius. It can reach the designated location in auto mode and release payload and return to home location.

108th Indian Science Congress

The 108th Indian Science Congress is being held from January 3 to 7, 2023. Prime Minister Narendra Modi virtually addressed the Indian Science Congress 2023, where he also remarked the importance of Science, technology and innovation with the inclusive involvement of every section of society including women.

The five-day event is being hosted by the Nagpur University at its Amravati Road Campus. The focal theme of this year's ISC is "Science and Technology for Sustainable Development with Women Empowerment." The forthcoming ISC has been designed to celebrate the spirit of womanhood and their remarkable contribution in the field of Science and Technology. In sync with their natural gift to generate, women have stood out as a true harbinger and have led the foundation of a number of innovative and niche developments and discoveries.

<https://newsonair.com/2023/01/07/108th-indian-science-congress-drdo-session-on-front-line-areas-of-research-in-strategic-sector/>



Fri, 06 Jan 2023

Kalam's Leadership Pivotal in Developing Agni Series of Missiles, Says Tessy Thomas

With almost all Defence Research and Development Organisation (DRDO) scientists having been moulded by former President and India's 'Missile Man' A.P.J. Abdul Kalam, the country is now in a position to export missiles, Tessy Thomas, renowned scientist and Director General of Aeronautical Systems at DRDO, has said.

Delivering the seventh Dr. A.P.J. Abdul Kalam Memorial Lecture organised by the Cochin Chamber of Commerce and Industry here on Friday, she went back in time and narrated how the steely resolve of Kalam resulted in the country developing the Agni-series of missiles, including the Agni-5 inter-continental ballistic missile that has a range of 5,000 km. It was achievable since he was willing to take risks, including adopting new technology.

Ms. Thomas spoke of how Kalam encouraged her and the 1,000-odd scientists at the DRDO and even knew most of them by name. He was a true leader and remained calm, even as panic and stress gripped the others when faced with initial setbacks during the launch of the Agni series of

missiles. He went the extra mile and spent days analysing what went wrong. His interpretation of “FAIL” was “First Attempt In Learning”, she said.

Speaking of a time when she was designated as project director of Agni-4, she said she thought it would be an easy task since she was associated with Agni 1, 2 and 3. But it was a challenge for the dedicated team of young scientists to re-engineer the missile system. It was worth the effort, and a missile system having 4,000-km range was developed. “My 30-odd years of interactions with Kalam helped me learn much from him on taking on stress and overcoming failure,” she said.

<https://www.thehindu.com/news/national/kerala/kalams-leadership-pivotal-in-developing-agni-series-of-missiles-says-tessy-thomas/article66347319.ece>

DRDO on Twitter



 **DRDO** ✓
@DRDO_India

#DRDOUpdates | Parliamentary Standing Committee on Defence visited #DefenceLaboratory, Jodhpur on study tour today. Hon'ble Chairman of the committee and members evinced keen interest in live demo of chaff technology, defence products & were briefed on the ongoing projects.



 Sadananda Gowda and 3 others

11:04 PM · Jan 7, 2023

Defence News

Defence Strategic : National/International



Press Information Bureau
Government of India

Ministry of Defence

Fri, 06 Jan 2023

Raksha Mantri Shri Rajnath Singh Visits Indira Point, Country's Southernmost Tip, During his Visit to Andaman & Nicobar Islands

On the final day of his two-day visit to Andaman & Nicobar Islands, Raksha Mantri Shri Rajnath Singh visited Indira Point, the southernmost tip of the country, on January 06, 2023. He was accompanied by Commander-in-Chief Andaman and Nicobar Command (CINCAN) Lieutenant General Ajai Singh. Shri Rajnath Singh took stock of the defence preparedness and encouraged the troops to continue protecting the national interests in the region. Indira Point is along the Great Channel, popularly referred to as the 'Six Degree Channel', which is a major shipping lane for international traffic. A strong presence of the Armed Forces equips India to better discharge its responsibility of being a net security provider in the region.

En-route, the Raksha Mantri halted at the Car Nicobar Island and Campbell Bay where he was apprised about the ground conditions. He also interacted with the joint services troops of Andaman and Nicobar Command there, lauding them for serving the country with unmatched bravery and commitment.

The Raksha Mantri was familiarised with the terrain of Southern Group of Andaman and Nicobar Islands. He also paid a visit to INS Baaz and interacted with troops. On January 05, 2023, the Raksha Mantri visited the Headquarters of Andaman & Nicobar Command in Port Blair where he reviewed the operational preparedness of the Command and infrastructure development at operational areas. This is the first visit of the Raksha Mantri to Indira Point since January 2019. Apart from the Strategic Signalling in view of proximity of these far-flung islands to the Indo-Pacific, the visit of Raksha Mantri to A&N Command motivated the troops deployed in these distant and remote islands. It is pertinent to mention that A&N Command is a 21-year-old successful Integrated Theatre Command which is now being planned at the national level.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1889137>



Fri, 06 Jan 2023

Defence Minister Visits Naval Air Station INS Baaz in Andamans

Defence Minister Rajnath Singh Friday visited INS Baaz, the Indian naval air station under the joint services Andaman and Nicobar Command of the Indian Armed Forces, at Campbell Bay in Great Nicobar Island, Press Trust of India reported quoting defence sources.

He was accompanied by Lieutenant General Ajai Singh AVSM, the commander-in-chief of Andaman and Nicobar Command (CINCAN), and interacted with the troops there.

Mr Singh's visit and his interaction with the troops assume importance in light of the growing influence of China in the Indian Ocean region. INS Baaz overlooks the Strait of Malacca, the sea route through which the majority of Chinese imports pass, and is one of the most important shipping routes in the world both from economic and strategic viewpoints, the sources said.

INS Baaz, which is a full-fledged forward operating base of the Indian Naval Air Arm, also overlooks the Six Degree channel between Great Nicobar and the Indonesian island of Sumatra.

Campbell Bay is the country's eye over the Strait of Malacca, which is the shortest shipping channel between the Indian and Pacific Oceans and connects major economies like China, Japan, the Middle East, and South Korea.

Mr Singh was familiarised with the terrain of the southern group of Andaman and Nicobar Islands. He later visited Indira Point, the southernmost tip of the country. After visiting INS Baaz he also went to the Air Force station at Car Nicobar, the sources said.

He arrived in Port Blair on Thursday to review the operational preparedness of the Andaman and Nicobar Command (ANC). In his address to the defence officers and jawans he raised the border stand off with China and lauded the bravery of Indian soldiers from Galwan in Ladakh to Yangtse in Arunachal Pradesh.

During his two-day visit, Mr Singh held a high-level meeting with Lt Gen Ajai Singh, the 16th Commander-in-Chief Andaman and Nicobar Command (CINCAN) to get a first-hand report of the overall operational situation and military surveillance.

He also visited the ANC's Joint Operations Centre (JOC), which is the nerve centre for integrated planning for surveillance, the conduct of operations, and logistics support.

There are plans to extend the ANC's runways at Car Nicobar, Campbell Bay, and Shibpur in North Andaman to strengthen its capabilities to handle any maritime threat, the sources added.

The ANC, established about 21 years ago, is the first tri-service theatre command of the Indian Armed Forces and is based in Port Blair. It is under the CINCAN for building synergy and cohesion between the services while defending national interests in the Andaman and Nicobar region, the defence sources added.

<https://www.ndtv.com/india-news/defence-minister-rajnath-singh-visits-naval-air-station-ins-baaz-in-andamans-3669367>

नवभारत टाइम्स

Mon, 09 Jan 2023

आतंकियों संभल जाओ, भारत-पाक बॉर्डर पर सुरंग की तलाश करेंगे रेडार वाले ड्रोन, घुसपैठ की कोशिश को यूं करेंगे फेल

सीमा सुरक्षा बल (बीएसएफ) ने जम्मू क्षेत्र में भारत-पाकिस्तान इंटरनेशनल बॉर्डर पर आतंकवादियों के लिए घुसपैठ में इस्तेमाल की जाने वाली सुरंगों की मौजूदगी का पता लगाने को लेकर पहली बार रेडार लगे ड्रोन तैनात किए हैं। अधिकारियों ने यह जानकारी दी। सुरक्षा बल की ओर से सुरंग का पता लगाने के अभ्यास के तहत हाल में इस मोर्चे पर देश में ही तैयार तकनीकी उपकरण का इस्तेमाल किया गया है। इसका मकसद यह निश्चित करना है कि कोई भी आतंकवादी भारतीय क्षेत्र में घुसने और जम्मू-कश्मीर या देश के किसी अन्य जगह पर हमले करने में सक्षम नहीं हो। इन सुरंगों का इस्तेमाल नशीले पदार्थों, हथियारों और गोला-बारूद की तस्करी के लिए भी किया जाता रहा है।

192 किलोमीटर में कम से कम 5 सुरंगों का लगा पता

बीएसएफ ने पिछले तीन वर्षों में जम्मू मोर्चे (भारत-पाकिस्तान अंतरराष्ट्रीय सीमा) के लगभग 192 किमी में कम से कम पांच सुरंगों का पता लगाया है। आधिकारिक आंकड़ों के अनुसार, दो ऐसी सीमा-पार सुरंगों का पता 2020 और 2021 में लगाया गया था, जबकि एक पिछले साल मिली थी और ये सभी जम्मू के इंद्रेश्वर नगर सेक्टर में पाई गई थीं। बीएसएफ के एक अधिकारी ने कहा, 'बीएसएफ ने भारत-पाकिस्तान इंटरनेशनल बॉर्डर के जम्मू क्षेत्र में सुरंगों का आए दिन पता चलने के मद्देनजर खतरे का मुकाबला करने के लिए एक स्मार्ट तकनीकी उपकरण खरीदा है। पाकिस्तान से भारत में घुसपैठ करने के लिए आतंकवादियों की ओर से इस्तेमाल की जाने वाली इन गुप्त संरचनाओं की जांच के लिए क्षेत्र में एक से अधिक रेडार युक्त ड्रोन तैनात किए गए हैं।'

कैसे काम करते हैं ये ड्रोन

क्षेत्र में कार्यरत अधिकारियों ने कहा कि वर्तमान में तैनात किए जा रहे रेडार एक भारतीय मैनुयुफैक्चरर ने विकसित किए हैं और ये सुरंगों की मौजूदगी का पता लगाने तथा उनकी लंबाई को मापने के लिए मजबूत रेडियो तरंगों का यूज करते हैं। अधिकारियों ने कहा कि रेडार के विशिष्ट विवरण का खुलासा नहीं किया जा सकता है, लेकिन नए उपकरण से सुरंग का पता लगाने में सैनिकों को काफी मदद मिलेगी। उन्होंने कहा कि इसके असर का अभी अध्ययन किया जा रहा है। उन्होंने कहा कि इस मोर्चे पर ऐसे इलाकों तक बेहतर पहुंच प्रदान करने के

लिए ड्रोन पर रडार लगाए गए हैं, जहां तक जमीनी टीम का पहुंचना मुश्किल है। आमतौर पर छिपी सुरंगों की निगरानी सीमा बाड़ से लगभग 400 मीटर दूर तक की जाती है।

<https://navbharattimes.indiatimes.com/india/bsf-installs-radar-based-drone-will-identify-terrorists-coming-through-tunnel-see-how-it-works/articleshow/96841170.cms>

Outlook

Mon, 09 Jan 2023

Standing Committee on Defence Visits Pokaran Field Firing Range

A delegation of Members of Parliament of the Standing Committee on Defence (SCOD) visited the Pokaran field firing range near Jaisalmer and reviewed the integrated fire power demonstration. The members also assessed the versatile and indigenously developed weapon systems and took stock of them in simulated battlefield conditions with the effect of hitting targets. They also reviewed the existing and planned infrastructure development at the range to adapt to the future requirements of training by the Indian Army.

The committee will visit Jaisalmer on Monday where they will be briefed by Lt Gen AK Singh, Army Commander, Southern Command, Pune. The committee consists of 22 other members of SCOD along with Chairman Jual Oram. The SCOD is a committee consisting of elected members of Parliament for the purpose of legislative oversight of defence policies and decision-making of the Ministry of Defence.

<https://www.outlookindia.com/national/standing-committee-on-defence-visits-pokaran-field-firing-range-news-251975>



Sat, 07 Jan 2023

Indian Navy Signs Contract for Autonomous Armed Boat Swarms Under SPRINT Scheme

The Indian Navy has signed an agreement with Sagar Defence Engineering Pvt. Ltd for armed autonomous boat swarms under 'SPRINT', an initiative to promote development of niche defence technologies by domestic companies. This is the 50th contract under 'SPRINT', which aims at the development of 75 indigenous technologies by the industry for the Navy, officials said. The contract was signed on Wednesday. "We are keeping the pressure on to sign the 100th contract by January end. Our aim is to induct 75 new technologies by August 15, 2023 as part of Azadi ka Amrit Mahotsav," a Navy official said. Sagar Defence Engineering has the know-how to create the nation's first armed autonomous unmanned boat with swarming capabilities, the company said in a statement. "The agreement refers to an Indian Navy project of the Defence India Start-up Challenge (DISC 7) SPRINT initiative, and the Indian Navy expects to place an order for 12 systems after the construction of the weaponised autonomous unmanned boat," it stated. The platform will be able to conduct a range of navy and security tasks including high-

speed interdiction; surveillance; constabulary operations; Command, Control, Communications, Computers (C4) Intelligence, Surveillance and Reconnaissance (C4ISR); and low-intensity maritime operations. 'SPRINT' stands for Supporting Pole-vaulting In R&D through Innovations for Defence Excellence (IdeX), Naval Innovation and Indigenisation Organisation (NIIO) and Technology Development Acceleration Cell (TDAC). It was launched by Prime Minister Narendra Modi last July.

<https://www.thehindu.com/news/national/navy-signs-contract-for-autonomous-armed-boat-swarms-under-sprint/article66349788.ece>



Fri, 06 Jan 2023

Is Rafale M the Final Choice for the Indian Navy – Deal Expected to be Announced Soon

By Huma Siddiqui

Soon the Indian Navy is expected to get Rafale fighter jets from the French Company Dassault Aviation. Though there is no official announcement so far from the government, the French President Emmanuel Macron is expected to visit India in early March and the deal for deck based fighter jets is likely to be announced. The bilateral visit of the French President is in addition to his visit scheduled later in the year for the G20 Leaders Summit in September which will take place in New Delhi. Financial Express Online has reported recently that the IAF has received the final Rafale fighter jet – signaling the completion of the delivery of the 36 fighters the government had ordered for the IAF.

Rafale M for the Indian Navy

If this is ordered for the Indian Navy then it is going to be deployed on the latest Indian Aircraft Carrier – INS Vikrant which was commissioned into the navy last year. This aircraft is being used by other armies across the globe like the United Arab Emirates (UAE), Indonesia and Greece. The Rafale M is a fighter of the fourth generation that features a delta wing and twin engines. This fighter jet can also launch nuclear assaults as it comes with its semi-stealth capabilities; however, it is highly improbable that the US will give its F-18 Super Hornet permission to carry out such operations. And, “India will lose its strategic autonomy if it buys aircraft from the United States,” explained an officer who wished to remain anonymous.

Indian Navy’s requirement

The Indian Navy is looking to upgrade its fleet of fighters, which is currently made up of the problematic Russian-origin MiG-29Ks. The Navy has plans to decommission 43 Russian MiG-29K and MiG-29KUB from the fleet soon. In 2022, the Financial Express Online reported that the Indian Navy evaluated the Rafale-M, which is manufactured by the French aircraft company Dassault Aviation, as well as the F/A-18 Super Hornet, which is manufactured by the American aircraft manufacturer Boeing. Following the completion of the tests, the Navy provided the Ministry of Defense with an extensive report late last year. According to the findings of the study, the Rafale-M is the aircraft that is best suited to meet the operational requirements of the

Indian Navy. The trials of the Rafale M and the American made F/A-18 Super Hornet were conducted extensively in 2022 at INS Hansa, a naval base in Goa.

Why does the Navy prefer the Marine Version?

The IAF operates two squadrons of the Rafale fighter, and if the Indian Navy orders the marine variant of the same fighter, spares and maintenance will be shared between the two services. The marine variant of the Rafale will share more than 85 percent of its components with the IAF variant. In the long term, an Indian company may even overhaul both types. It has been reported that the French government is prepared to strip its aircraft carrier Charles de Gaulle of some of its Rafale M fighter jets and hand them over to India. This would allow Indian carrier pilots to begin training and develop rules of operations prior to the arrival of the Rafale Ms that have been contracted to be delivered. France has placed sanctions on Russia in response to pressure from the US, despite the fact that France has historically helped India with military weapons during times of conflict. Because France has never sanctioned India in its history, it enjoys an advantage over other countries in terms of dependability. The US on the other hand has historically sanctioned India.

Geopolitics and military procurement

France's stance toward Russia in the situation in Ukraine has been more mature than that of the US, which has restricted the use of its currency and shipping for dealings with Russia. France, on the other hand, has taken a more conciliatory approach. The majority of nations, which do not want to become involved in the conflict, have found this to be a source of the difficulty. Therefore, this exemplifies the strategic reason why it is not a good idea to purchase a limited number of American aircraft for Indian aircraft carriers.

While deciding whether or not to buy fighters, New Delhi will also consider India's rapidly expanding defence relationship with France, which also has interests in the Indian Ocean. France has a long history of naval presence in the region. The Indian Navy will buy 26 deck based fighters and this will be through Intergovernmental Agreement (IGA) (Government-to-government) route. And the aircraft procured will be based on the operational requirement and the specifications of the navy and this also includes the need for twin engine versus single engine as well as the weight.

<https://www.financialexpress.com/defence/is-rafale-m-the-final-choice-for-the-indian-navy-deal-expected-to-be-announced-soon/2939026/>



Press Information Bureau
Government of India

Ministry of Defence

Sat, 07 Jan 2023

IAF & Japan Air Self Defence Force Set to Exercise Jointly in Japan

To promote Air Defence cooperation between the countries, India and Japan are all set to hold the joint Air Exercise, 'Veer Guardian-2023' involving the Indian Air Force and Japan Air Self

Defence Force (JASDF) at Hyakuri Air Base, Japan from 12 January 2023 to 26 January 2023. The Indian contingent participating in the air exercise will include four Su-30 MKI, two C-17 & one IL-78 aircraft, while the JASDF will be participating with four F-2 & four F-15 aircraft.

During the second 2+2 Foreign and Defence Ministerial meeting held in Tokyo, Japan on 08 September 2022, India and Japan agreed to step up bilateral defence cooperation and engage in more military exercises, including holding the first joint fighter jet drills, reflecting the growing security cooperation between the two sides. This exercise will thus be another step in deepening strategic ties and closer defence cooperation between the two countries.

The inaugural exercise will include the conduct of various aerial combat drills between the two Air Forces. They will undertake multi-domain air combat missions in a complex environment and will exchange best practices. Experts from both sides will also hold discussions to share their expertise on varied operational aspects. Exercise 'Veer Guardian' will fortify the long standing bond of friendship and enhance the avenues of defence cooperation between the two Air Forces.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1889366>



Sat, 07 Jan 2023

India, UK to Hold Naval Drills off A&N

With China adopting an aggressive stance in the Indo-Pacific region, navies of India and Britain will carry out joint exercises off Andaman and Nicobar Islands in the next five to six days. The Royal Navy's offshore patrol vessel, HMS Tamar, sails to the Andaman and Nicobar Islands on Friday as part of its permanent deployment in the Indo-Pacific. Over the next five days, the ship and her crew will undertake capability demonstrations and maritime exercises with the Indian Navy.

HMS Tamar is one of two Royal Navy vessels on permanent deployment in the Indo-Pacific as set out in the United Kingdom's Integrated Review. The ship's visit to India is an opportunity to further strengthen the shared maritime domain awareness effort, and underlines the UK's and India's intent to collaborate in the Indian Ocean Region and wider Indo-Pacific, the British High Commission said here on Friday.

<https://www.dailypioneer.com/2023/india/india--uk-to-hold-naval-drills-off-a-n.html>



Sat, 07 Jan 2023

First Time in a Decade, UK Vessel Sails to Port Blair

For the first time in a decade, an offshore patrol vessel of the Royal Navy of the United Kingdom, HMS Tamar, has entered Port Blair in the Andaman and Nicobar Islands as part of its permanent deployment in the Indo-Pacific region.

Over the next five days, the ship and her crew will undertake capability demonstrations and maritime exercises with the Indian Navy, the British High Commission said in a statement.

As per defence officials, this is the first time since 2011 that a Royal Navy ship has entered Andaman and Nicobar Islands which sits on the gateway to the Indo-Pacific region. Naval ships of other foreign countries such as the United States, Australia and New Zealand are among those which visited the islands since 2011, though such visits have not been “very frequent”, the officials said.

“This also shows the significant growth in the naval infrastructure of the Andaman and Nicobar Command to host foreign ships,” a defence official told The Indian Express. Defence Minister Rajnath Singh, who is on a two-day visit to the strategic military command at the islands, on Friday, visited Indira Point, the southernmost tip of India, at the Great Nicobar Island—which is separated from Indonesia by the 163-km wide Six Degree channel.

Royal Navy ships have, however, visited other ports in the mainland and have in the past taken part in various maritime exercises with the Indian Navy, a recent one being the maiden India – UK Joint Tri-Service exercise Konkan Shakti between October 21-27, 2021, in the Arabian Sea.

Officials said any foreign ship visiting an Indian port first puts in a request, which after clearances from the Navy and the Ministry of External Affairs, is communicated to the country.

HMS Tamar, along with HMS Spey, are the two Royal Navy vessels on permanent deployment in the Indo-Pacific as set out in the UK’s Integrated Review, the British High Commission statement mentioned. “The ship’s visit to India is an opportunity to further strengthen the shared maritime domain awareness effort, and underlines the UK’s and India’s intent to collaborate in the Indian Ocean Region and wider Indo-Pacific,” it added.

The UK has also signed a White Shipping Agreement with India which enables information sharing across the whole of the Indian Ocean Region. In June 2021, the UK posted its first permanent liaison officer at the Indian Navy’s Information Fusion Centre for Indian Ocean Region (IFC-IOR) in Gurugram to enhance maritime domain awareness in the region, the statement mentioned.

<https://indianexpress.com/article/india/first-time-in-a-decade-uk-vessel-sails-to-port-blair-8366451/>



Sat, 07 Jan 2023

MoUs Worth \$2 B Signed with North American Cos

The Uttar Pradesh government has signed memorandums of understanding (MoUs) worth nearly \$2 billion (about Rs 16,400 crore) with North American companies in the logistics, defence and aerospace sectors.

The agreements were inked recently with the companies incorporated in the US and Canada, a senior government official said.

US-based Mobility Infrastructure Group will invest Rs 8,200 crore in logistic projects, expected to generate 100 fresh employment opportunities. Canada-based QSTC will also pump in Rs 8,200 crore in defence and aerospace projects, creating 200 jobs.

The government is looking to showcase the state's military hardware manufacturing potential as well as the UP Defence Industrial Corridor at the UP Global Investors' Summit (GIS) 2023 in Lucknow during February 10-12.

The event is likely to attract defence manufacturers from the US, Europe, Russia, the UK, Sweden, France, Israel, and Germany. These include: US missile company Northrop Grumman; UK missile launch systems and ammunition maker BAE Systems; German rifle company Umarex; Swedish firm SAAB, the maker of Carl Gustaf M4 rifles; Russia's Almaz-Antey, a leading military hardware exporter; France's Dassault Aviation, which manufactures Rafale jets; and Israel Weapon Industries (IWI), which deals in unmanned aerial systems.

"During the recent visit of the UP ministers and officials to North America in the run-up to the GIS next month, MoUs of almost Rs 20,000 crore were signed across sectors with logistics, defence, and aerospace leading the chart," he said.

India eyes \$5 billion exports in defence manufacturing in near future. The two defence industrial corridors in UP and another in Tamil Nadu are seen as the steps taken by the Centre to achieve this goal.

The UP Defence Industrial Corridor spans six nodes: Lucknow, Kanpur, Jhansi, Aligarh, Chitrakoot and Agra. So far, the state has acquired 1,600 hectares of land for allotment to companies.

Meanwhile, the UP delegation to North America led by Legislative Assembly Speaker Satish Mahana and cabinet minister Dharampal Singh, held 51 government-to-government (G2G) and business-to-business (B2B) meetings in the US and Canada. They received 27 letters of intent (LoI) worth Rs 41,000 crore, of which eight proposals were converted into MoUs and signed. At the mega summit, the UP government is targeting private investment to the tune of Rs 17 lakh crore.

<https://www.dailypioneer.com/2023/state-editions/mous-worth--2-b--signed-with-north--american-cos.html>



Sat, 07 Jan 2023

India Sends All-Women Team for UN Peacekeeping Missions in Sudan

India is deploying an all-women contingent in Sudan's Abeyi region as part of its peacekeeping missions under the aegis of the United Nations.

It will be India's largest single unit of female soldiers in a UN mission since 2007. The Army team comprises two officers and 25 other ranks.

Hailing the development, Prime Minister Narendra Modi said, “Proud to see this. India has a tradition of active participation in UN peacekeeping missions. The participation by our Nari Shakti is even more gladdening.”

He was reacting to an Army tweet that said, “Indian Army deploys its largest contingent of women peacekeepers in United Nations mission at Abyei, UNISFA.

“The team will provide relief and assistance to women and children in one of the highly operational and challenging terrain conditions under the UN flag.”

India is deploying an all #women’s platoon of peacekeepers as part of our battalion to the UN Mission in #Abyei @UNISFA_1. This is the single largest deployment of women #peacekeepers in recent years. Good wishes to the team!” India’s Permanent Representative to the UN Ambassador Ruchira Kamboj tweeted late on Thursday.

The platoon of women peacekeepers will be deployed in Abyei as part of the Indian Battalion in the United Nations Interim Security Force, Abyei (UNISFA) on January 6, 2023.

The Indian contingent, comprising two officers and 25 other ranks, will form part of an engagement platoon and specialise in community outreach and will be performing extensive security-related tasks as well.

In September last year, Kamboj had said in a United Nations Security Council briefing on United Nations Peacekeeping Operations that the role of women peacekeepers cannot be over-emphasised ineffective peacekeeping.

She had underlined that India took pride in having deployed the first-ever all-women peacekeeping contingent in Liberia in 2007, “which inspired a whole generation of Liberian women to take part in the country’s security sector. We stand ready to contribute further to this regard.”

The Indian mission noted in a statement that women peacekeepers are “highly regarded” in UN missions throughout the world for their ability to reach out and connect with women and children in local populations, especially victims of sexual violence in conflict zones.

“Indian women particularly have a rich tradition in peacekeeping,” said the statement, adding that the UN’s first Police Adviser Dr Kiran Bedi, United Nations Military Gender Advocate of the Year Award 2019 honoree Major Suman Gawani and Shakti Devi have made a mark for themselves in UN Peacekeeping.

In 2014, Devi of the Jammu & Kashmir Police, who was deployed in the UN Assistance Mission in Afghanistan (UNAMA), was named the recipient of the International Female Police Peacekeeper Award by the UN’s Police Division for her “exceptional achievements” with the UN mission in Afghanistan, including her efforts towards helping victims of sexual and gender-based violence.

“Our teams in the Congo and South Sudan have also done sterling work in mainstreaming women and children into community and social developmental projects at the grassroots level,” the Indian mission said.

The role of the 125-strong women peacekeepers of the Indian Formed Police Unit deployed with the UN mission in Liberia has been lauded for inspiring women in the West African nation to become police officers. Then UN Secretary-General Ban Ki-moon had hailed India’s women’s

peacekeeping unit in Liberia as an inspiration for all, saying their conduct served as an example of how women can help the world body in its efforts to combat sexual exploitation and abuse.

As of October 31, 2022, India is the second largest contributor to UN peacekeeping missions with 5887 troops and personnel deployed across 12 missions, after Bangladesh (7,017).

More than 200,000 Indians have served in 49 of the 71 UN peacekeeping missions established around the world since 1948.

India has a long tradition of sending women on UN peacekeeping missions. In 1960, women serving in the Indian Armed Forces Medical Services were interviewed by UN Radio before being deployed to the Republic of the Congo.

<https://www.dailypioneer.com/2023/page1/india-sends-all-women-team-for-un-peacekeeping-missions-in-sudan.html>



Sun, 08 Jan 2023

In a First, IAF to Deploy Women Fighter Pilots in Exercise Abroad

The Indian Air Force will for the first time deploy its woman fighter pilot for an exercise abroad from January 12-26. It will also be the first ever air joint exercise named 'Veer Guardian' between India and Japan to enhance strategic and defence ties.

Squadron Leader Avani Chaturvedi, a SU-30 MKI pilot, will be part of the contingent leaving for Japan on Sunday. Incidentally, she is also one of the three woman officers selected in 2016 for training to fly fighter jets. The other two are Bhavana Kanth and Mohana Singh.

Giving details of the upcoming, IAF officials said here on Saturday it will be held at Hyakuri Air Base to promote air defence co-operation. The Indian contingent will include four Su-30 MKI fighter jets, two C-17 and one IL-78 transport aircraft, while Japan will deploy four F-2 and four F-15 aircraft.

During the second 2+2 Foreign and Defence Ministerial meeting held in Tokyo, Japan on Japan eight last year, both the countries agreed to step up bilateral defence cooperation and engage in more military exercises, including holding the first joint fighter jet drills, reflecting the growing security cooperation between the two sides. This exercise will thus be another step in deepening strategic ties and closer defence cooperation between the two countries.

The inaugural exercise will include the conduct of various aerial combat drills between the two Air Forces. They will undertake multi-domain air combat missions in a complex environment and will exchange best practices, officials said.

Experts from both sides will also hold discussions to share their expertise on varied operational aspects. Exercise 'Veer Guardian' will fortify the longstanding bond of friendship and enhance the avenues of defence cooperation between the two Air Forces.

<https://www.dailypioneer.com/2023/india/in-a-first--iaf-to-deploy-women-fighter-pilots-in-exercise-abroad.html>

The Tribune

Mon, 09 Jan 2023

China Hell-Bent on Achieving Air Superiority

Gp Capt Murli Menon (Retd)

While much has been written about the two armies' capabilities amid the India-China standoff, a comparison between the air forces has been scarce. A recent article in Hong Kong-based South China Morning Post has raved about the touted 'supermanoeuvring' capabilities of the upgraded J-20B 'Mighty Dragon' Generation 5 interceptor/air superiority fighter, reportedly slated for mass production since last July.

The lessons learnt by the Chinese from the Indian Su-30MKI vs US F-15s during the Red Flag exercise of suboptimal use of 'thrust vectoring' or 'supermanoeuvrability' (which seeks to enable harsh defensive manoeuvring against aerial missile threats or even better, achieve advantageous weapon launch parameters during close combat with an adversary) have been used to refine their upgraded J-20B stealth platform. This, in itself, indicates a doctored proposition as the Indian Su-30MKIs allegedly wove circles around the Americans during those engagements! They had procured some thrust vector control (TVC) Su-35 aircraft from Russia, possibly to reverse-engineer the technology.

The images (albeit unclear) accompanying the South China Morning Post article appear to indicate changes in airframe-control surfaces for enhanced manoeuvrability and an enlarged spine fuel tank capacity. Now, whilst the Chinese are past masters at info/psychological operations/warfare campaign, especially against neighbours, suffice to say that everything mentioned in the article need not necessarily be gospel truth; sans any authentic kinetic or computer fly-off against established fighter technologies from the West and even India (such as the Su-30MKI or the impending Tejas 2 or Advanced Medium Combat Aircraft, AMCA), these comparisons would remain speculative.

The Chinese are seeking to replace the existing AL-31 F2 turbofan on the J-20 with the indigenous, more powerful WS-15 to achieve an enhanced thrust-to-weight ratio. But this will remain a pipe dream until the WS-15 indigenous manufacturing project gains fruition. But then, why should the Chinese be seeking supermanoeuvrability as a preferred option for the J-20B, if indeed the advantage of TVC is negated by the disadvantage of a rapidly decaying speed vector and consequent vulnerability to "follow-on" attacks by the adversary?

Quite clearly, the Chinese author praising the unique thrust vector capability of the J-20B does not understand if it is indeed a plus point in design or rather a handicap in close combat. The renowned vectoring in forward flight (or 'VIFFing' as colloquially known) had proved tremendously advantageous to the Royal Navy Harriers fighting Argentine fighter resistance during the Falklands War of 1982. So it does appear that the Chinese are hell-bent on achieving air superiority as an attribute for their air force in any future air war against the Americans over Taiwan. But the crux of the issue would be air combat training, a perennial weak area for the People's Liberation Army Air Force. Experience from past episodes in fighter engine manufacturing does not suggest dramatic capabilities with the Chinese aircraft manufacturing industry, regardless of their tendency to 'steal' technology from the West. In the earlier case of

the FC-1 (later JF-17) programme, the plan was to use Russian RD-33 engines (same as those on our MiG-29s) till Russian President Vladimir Putin himself declared that the transfer of technology would not be made available to the Chinese. So, it is doubtful that the Chinese would remain at the mercy of Russian technology for engines, lest the entire aircraft programme flounders. Engine manufacture, especially from the ‘raw material’ stage, is challenging and has been the bane for industries in China and India (our own sad story of the Kaveri engine is typical). Another key hindrance, especially for high-altitude fighter operations, would be the tailoring of fuel-metering jets on the engines to prevent a ‘rich cut’, especially during start-up.

The Indian Air Force (IAF) learnt to adapt to this peculiar requirement whilst learning to maintain the MiG-23BNs, MiG-23MFs and MiG-29s at Leh and Thoise. Ahead, the IAF could also think of operating fighters from Daulat Beg Oldie (DBO). Our experience found that it is easier to operate western-technology aircraft from high altitudes such as Mirages and Hawker Hunters. So, would it be for the Rafales and perhaps the Tejas and the advanced medium combat aircraft down the line as our technicians are proficient in these tweaks? The Chinese have been doing limited J-10 operations periodically from their high-altitude air bases such as Hotan and Lhasa Gongga.

But operationally, these bases pose stringent load penalties. On the other hand, India has 25-odd airfields along the Himalayan border capable of launching air operations across the hilly terrain into the Chinese mainland. Therefore, high-tech fighter aircraft, such as the J-20B, need not necessarily do the job in terms of objectives, as their radar missile combination would also be compromised in the high terrain. Another important consideration would be the efficacy of ground attack and air defence weaponry. Traditionally, Russian and Chinese missiles, more so the air-to-air ones, have not been proven in air combat, unlike the ones employed in various air operations since World War II and Vietnam War by the Americans and their NATO allies.

The Chengdu Aerospace Corporation hopes to roll out 200 J-20Bs in the next five years, an amazing one aircraft or so per month over four production lines, which is remarkable by any standard. The aircraft is meant to bridge the technology gap with the American F-35 and F-22 and a naval version using TVC is also supposedly slated. The older J-20As flew across the Taiwan straits last year during the standoff over Nancy Pelosi’s visit. In any case, the Chinese would not in the long term accept Russian engine technology for their J-20Bs.

<https://www.tribuneindia.com/news/comment/china-hell-bent-on-achieving-air-superiority-468707>



Sat, 07 Jan 2023

Chinese Soldiers Conduct Drills with PLA’s ‘Most Powerful’ Tank, Type 99A, In Xinjiang Region at -20° Celsius

By Ashish Dangwal

The Chinese People’s Liberation Army’s Type 99A, the most powerful tank in service, recently participated in a military drill in the Xinjiang Military District.

China Central Television (CCTV), a state-owned media company in China, broadcast the video of the military exercise on January 5. The video reveals that armored divisions in the Xinjiang Military District are now fielding Type-99A tanks.

The Type 99A, also known as ZTZ-99A, is one of China's latest main battle tanks (MBT), with better firepower capabilities and anti-tank missiles. It is classified as a third-generation Main Battle Tank (MBT) and is the most advanced Main Battle Tank currently in service with the People's Liberation Army.

The Type 86 infantry fighting vehicle, also known as WZ501, was also part of the military exercise, which was likely carried out by a division of the Lanzhou Military Region, Western Theater command.

The Lanzhou Military Region is one of the seven military regions of China. The Lanzhou Military Region is in charge of the Ali region in northwest Tibet, as well as Xinjiang, Qinghai, Gansu, Ningxia, and Shaanxi.

In the video, the Chinese soldiers can be seen maneuvering their armored vehicles in the high-altitude areas while maintaining battle formation and firing at targets. The training was conducted at a temperature of -20 degrees Celsius, according to a text in the video.

Chinese soldiers simulated military combat training. The unit that conducted the drill is reportedly stationed close to Aksai Chin. However, the EurAsian Times could not verify this particular claim.

The Type 99A is China's most lethal main battle tank and features superior armor and firepower. In February 2021, Global Times reported that PLA's Type 99A was deployed by the Xinjiang Theater Command in the high-altitude border frontier at Karakoram Mountain.

The 57-ton 99A stands between the 70-ton American Abrams and the 48-ton Russian T-90 (one of India's MBTs).

PLA's Type 99A

The Type-99 is China's third-generation main combat tank, which was inducted into service in 2001. China's indigenous battle tank development goes back to the 1980s. The People's Liberation Army of China produced one of its most technologically advanced battle tanks, the Type 99, as part of its military modernization program.

In the mid-2000s, Norinco produced the enhanced Type 99A variant. The turret armor was upgraded and had a distinctive pointed design, but the 99 and 99A are relatively identical.

Additionally, it has a brand-new Fire Control System with cutting-edge thermal sighting tools. The Type 99A project was supposed to begin sometime in 2007 and is currently in full production. The Type 99A units are digital and networked and can strike foes even when out of sight. The primary gun for the Type 99A is an upgraded ZPT98 series 125mm smoothbore. It has a muzzle velocity of 1780 m/s and can fire a range of rounds.

The Type 99A has a new-shaped modular front on its turret and an enhanced composite armor protecting the front of the hull and turret. The vehicle is equipped with new explosive reactive armor, which experts say can stop tandem-charged anti-tank missiles.

To provide more protection, the new ERA is mounted along the flanks of the turret and continues along the side of the storage racks. Along the front of the hull, the ERA is likewise installed.

The vehicle incorporates an NBC system, a fire suppression system, and smoke grenade launchers. There are no visible “hard-kill” launchers in the new system. A traversable laser detection and jammer device with what is thought to be ZM87 capability (the ability to blind an enemy gunner) is mounted on the roof.

The Chinese 99A has not yet engaged in a real-combat situation. The Type-99A made its debut at the 2015 Victory Day Parade, where it was intended to be a “true competitor to international designs.” The 150HB, a 1500hp diesel engine, drives the Type 99A. The engine is thought to be based on the German MT883 diesel engine seen in the EuroPowerPack. The Type 99A has a new automatic transmission and torsion bar suspension.

<https://eurasianimes.com/chinese-soldiers-conduct-drills-with-plas-most-powerful-tank-type-99a/>



Fri, 06 Jan 2023

Japan Set to Boost Patrolling Near Senkaku Islands Amid Rising Threats from China

The Japanese government has decided to enhance security near its territorial waters amid the increasing presence of Chinese vessels in and around the waters near the Senkaku Islands, also known as the Diaoyu islands in China. The Fumio Kishida-led government has introduced a policy to strengthen the nation's Coast Guard capabilities, including patrolling its waters by ship and aircraft, reported ANI, citing Japan's NHK World. This development comes as China boosted its maritime activities last year near the Senkaku Islands in Okinawa Prefecture, per the Japanese media.

Earlier in December, the Chinese forces had navigated Japanese waters for over 3 days, reported NHK further stating that it was the longest-ever continued intrusion of its kind after Japan's government bought some of the islands from a private Japanese owner in 2012. Last month, the Japanese parliament passed a new security budget that will be implemented this year for a record-high defence budget of 6.8 trillion yen.

Japan set to boost patrolling near Senkaku Islands amid rising threats from China

Japan's military spending was around 1.24 percent of GDP last year, amounting to 5.4 trillion yen, which was connected with the Japanese government's decision to ensure an increase in defence spending to 2 percent of the country's gross domestic product by 2027, reaching approximately 11 trillion yen per year.

It is important to mention here that Japan is facing mounting threats from China and North Korea. Japan, however, has responded to its threat by boosting its defence policy, something they call a "major shift" in the country's defence budget. The new policy of Japan includes plans to build a multilayered network among its allies and like-minded countries, expand it, and strengthen deterrence.

China expresses concern over Japan's expenditure on its defence security budget

Earlier, Chinese Foreign Ministry spokeswoman, Wang Wenbin had expressed concern over Tokyo's defence spending and called it 'dangerous.' "We express concern over the obvious and significant increase in Japan's defence spending," Wang told a briefing, reported Sputnik. She further maintained that Japan has increased its defence spending to boost its own military strength, which might be used against Beijing, and called this decision "very dangerous." The diplomat further said Fumio Kishida's government's decision to increase its defence budget has now "forced" Japan's neighbours and the world to think whether Tokyo is interested in peaceful development or not.

<https://www.republicworld.com/world-news/rest-of-the-world-news/japan-set-to-boost-patrolling-near-senkaku-islands-amid-rising-threats-from-china-articleshow.html>



Sat, 07 Jan 2023

Japan, US to Hold Security Talks before Kishida Meets Biden

Japan and the United States will hold security talks between their foreign and Defence ministers in Washington the day before Japanese Prime Minister Fumio Kishida lands in the US capital next week wrapping up his tour of Group of Seven nations as Tokyo expands its military and deepens its alliance with America amid China's growing influence. Kishida will embark on a five-nation trip Monday to France, Italy, Britain and Canada ahead of his January 13 summit with US President Joe Biden.

While the two leaders last met during a Group of 20 meeting in Bali, Indonesia, Kishida's Washington visit will be his first as prime minister. Defence Minister Yasukazu Hamada and Foreign Minister Yoshimasa Hayashi will fly to Washington to join their American counterparts Lloyd Austin and Antony Blinken for their "2+2" security talks on Wednesday, just before their leaders' summit at the White House, Japanese officials said on Friday.

The "2+2" talks are expected to focus on their new national security strategies, released by Japan in mid-December and the United States in October, and how the two allies plan to tackle security concerns including China, North Korea and Russia.

"We will discuss strengthening of deterrence and response capability of the Japan-US alliance as we take into consideration our new strategy documents," Hamada told reporters.

Hamada said on Friday he and Austin will separately hold bilateral defence talks on Thursday to discuss details of how their militaries can expand and deepen their operations.

Asked if they will discuss a revision to their current Defence guideline based on Japan's more defensive role, Hamada said nothing has been decided.

Japan in December adopted a set of three security and defence strategy documents that break from its exclusively self-Defence-only stance.

Under the new strategies, Japan vows to build up its counterstrike capability with long-range cruise missiles including US-made Tomahawks that can reach potential targets in China, double its Defence budget within five years and bolster development of advanced weapons. US officials have welcomed Japan's willingness to take on a more offensive role, while experts say it could also help widen cooperation with Australia, their main regional defence partner.

Kishida on Wednesday said his talks with Biden will underscore the strength of the Japan-US alliance and highlight closer cooperation between the countries under Japan's new security and defence strategies adopted last month. Kishida said coordination with other G-7 leaders ahead of the Hiroshima summit he will host in May is a key purpose of his trip, but Japanese officials said their talks will also focus on security and military cooperation.

<https://www.dailypioneer.com/2023/world/japan--us-to-hold-security-talks-before-kishida-meets-biden.html>

THE ECONOMIC TIMES

Sat, 07 Jan 2023

US Announces Another USD 3 Billion Military Assistance Package for Ukraine

The United States has announced another military assistance package of over USD 3.75 billion for Ukraine to fight the battle against Russian aggression taking the total US military assistance for Ukraine to an unprecedented USD 24.9 billion. The latest tranche of assistance will include for the first time 50 M2-A2 Bradley armoured vehicles for the Ukraine military.

These armoured vehicles - enough to outfit a mechanised infantry battalion - will come with 500 tube-launched, optically sighted, wire-guided, or TOW, anti-tank missiles and 250,000 rounds of 25 mm ammunition, the Pentagon said.

On February 24, Russian President Vladimir Putin launched a "special military operation" aimed at the "demilitarisation and denazification" of Ukraine. "In this first week of 2023, the United States continues to stand strongly behind Ukraine and our European allies and partners by announcing more than USD 3.75 billion in new military assistance," Secretary of State Tony Blinken announced on Friday.

This assistance includes a USD 2.85 billion drawdown from stocks of the Department of Defence to be provided immediately to Ukraine and USD 225 million in Foreign Military Financing to build the long-term capacity and support the modernisation of Ukraine's military.

It also includes USD 682 million in Foreign Military Financing for European partners and allies to help incentivise and backfill donations of military equipment to Ukraine, he said.

"Today, the United States will demonstrate our continued enduring commitment to Ukraine's ability to defend itself with the announcement of over USD 3 billion in new military assistance to Ukraine, including USD 2.8 billion drawdowns for Ukraine, the largest yet," White House Press Secretary Karine Jean-Pierre told reporters at her daily news conference. The latest tranche also includes 100 M-113 armoured personnel carriers and 50 mine-resistant, ambush-protected vehicles. The US will also provide 138 Humvees, the Pentagon said.

Following the announcement, Secretary of Defence Lloyd Austin spoke with Ukrainian Minister of Defence Oleksii Reznikov to discuss the latest American commitment of more than USD 3 billion in additional security assistance. The war in Ukraine is at a critical point right now, and we have to do everything we can to help the Ukrainians continue to resist Russian aggression," Laura Cooper, deputy assistant secretary of defence for Russia, Ukraine, and Eurasia, told reporters at a Pentagon news conference.

The assistance also includes USD 682 million for regional partners and allies on NATO's eastern flank to incentivise and backfill donations of military equipment.

"As the President said yesterday, the war is at a critical point, and we must do everything that we can to help the Ukrainians resist Russian aggression," Jean-Pierre said.

According to John Kirby, the National Security Council Coordinator for Strategic Communications, the aid being provided to Ukraine from a security perspective is very much in keeping with two things: one, the needs that they have at the moment and our ability to provide those capabilities to them, but also taking a look at what the fight is likely to be going forward.

Blinken said working with Congress, the US plans to provide an additional USD 907 million of Foreign Military Financing under the Additional Ukraine Supplemental Appropriations Act, 2022. Funds will support Ukraine and countries impacted by Russia's war in Ukraine. USD 225 million for Ukraine will be used to cover wartime requirements of the Armed Forces of Ukraine to provide them with means necessary to defend against Russia's aggression and may also be used to support the sustainment of equipment previously provided to Ukraine under the Department of Defence's Ukraine Security Assistance Initiative and under previous drawdowns, he said. In the longer term, this Foreign Military Financing funding may be used to rebuild Ukraine's capacity to provide for its own defence through the development and modernisation of its armed forces, Blinken said.

<https://economictimes.indiatimes.com/news/defence/us-announces-another-usd-3-billion-military-assistance-package-for-ukraine/articleshow/96808443.cms>

Science & Technology News



Press Information Bureau
Government of India

Ministry of Science & Technology

Fri, 06 Jan 2023

Symposium on Emerging and Strategic Technologies at the Indian Science Congress

A seminar on 'Emerging and Strategic Technologies' was organised on Thursday, 5th January, at the Dr. A.K. Dorley Auditorium in the ongoing Indian Science Congress at Rashtrasant Tukdoji Maharaj Nagpur University. Srihari Babu Srivastava presided over the symposium.

During the symposium, P Siva Prasad, gave a presentation on 'Asymmetric Technology'. He explained how heterogeneous technologies are cost-effective, subtle and disruptive. He also examined various strategies of disintegration like socio-economic, geo-political, military and others.

Prof. RP Singh, PRL Ahmedabad, spoke about 'Quantum Technologies and Photonics: Application Oriented Research'. During the presentation a discussions regarding recent developments and implementation of quantum computing and sensing was held. Qubits and their importance and upcoming global events associated with them were also discussed.

Prof. Shantanu Chaudhary, Director, IIT Jodhpur, gave a presentation on the topic 'Artificial Intelligence in Cyber-Physical Systems'.

Prof. Rohan Paul presented his research on 'Cognitive Technologies and Autonomous Systems: Emerging Avenues'. He also explained what cognitive autonomous systems actually are and the emerging era of robot and human teaming. He further explained the need for cognitive abilities and technologies through models and examples.

The session was concluded by awarding mementos to the distinguished speakers.

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Press Information Bureau
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Ministry of Science & Technology

Fri, 06 Jan 2023

Union Minister Dr Jitendra Singh Says, All 37 CSIR Labs in India will be Turned into Global Centers of Research and Innovation in their Respective Fields of Specialization

The Minister launches “One Week One Lab” campaign highlighting India's global excellence in technology, innovation and StartUps.

“One Week One Lab Campaign” of CSIR at India Habitat Centre, New Delhi

Ministry of Science and Technology is preparing a Blueprint to identify Niche Technology of each Lab, their funding and manpower requirements and International Collaborations among other areas of action: DrJitendra Singh

The campaign to showcase the legacy, exclusive innovations and technological breakthroughs of each lab every successive week

CSIR labs shall be organizing week long events including industry & start-ups meet, students connect, society connect, display of technologies, etc.

DrJitendra Singh releases the Logo for CSIR’s One Week One Lab Campaign on the occasion

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, DrJitendra Singh today launched .

Each of the 37 CSIR (Council of Scientific & Industrial Research) Labs spread across the country is dedicated to a different exclusive area of work and the "on week, one lab" campaign will offer an opportunity to each one of them to showcase the work being done by it so that others can avail of it and stakeholders learn about it. CommmmIndia will be turned into Global Centers of Research and Innovation in their respective fields of Specialization.

DrJitendra Singh said, with the active and constant support of Prime Minister Narendra Modi for all scientific endeavours since May 2014, India is scaling new heights each day in Science, Technology, Innovation (STI) eco-system.

DrJitendra Singh referred to PM's address at 108th Indian Science Congress held in Nagpur this Tuesday, when he said, "We are also seeing the results of the scientific approach with which today's India is moving forward. India is fast becoming one of the top countries of the world in the field of science. Out of 130 countries, we were at number 81 in the Global Innovation Index till 2015. But we have jumped to 40th position in 2022. Today India is among the top three countries in the world in terms of PhDs. Today India is among the top three countries in the world in terms of start-up ecosystem".

DrJitendra Singh informed that in the "One Week One Lab" Campaign of CSIR, each of its 37 constituent laboratories, spread Nationwide, will showcase their legacy, exclusive innovations and technological breakthroughs every successive week. During the campaign each CSIR lab shall be organizing week long events including industry & start-ups meet, students connect, society connect, display of technologies, etc.

DrJitendra Singh informed that in the last decade, CSIR has facilitated the country with its first ever Biofuel-Powered Flight, BharatiyaNirdeshakDravya, asafoetida (Heeng) cultivation, indigenous development of dental implants, the technology of High-Resolution Aquifer Mapping, indigenously developed Hydrogen Fuel Cell Bus, road construction with Steel Slag, development of CSIR - TechnoS Raman Spectrometers, the Trainer aircraft HANSA- NG and many other technologies developed at different CSIR laboratories.

DrJitendra Singh was happy to note that each of 37 CSIR laboratories is unique and specializes in as diverse areas as the Genome to Geology, Food to Fuel, Minerals to Materials, and so on. CSIR has marked its footprint in the Nation with pathbreaking technologies and innovations since last 80 years, some of them include the indelible ink, Parallel Computers Flosolver, Swaraj Tractors, Centchroman, DNA Fingerprinting, Aroma Mission and many other.

The Minister pointed out that there is a plethora of technologies developed by the Scientists and researchers of CSIR laboratories for the society, but many of them remain confined to the laboratories. There is a need to establish the resourceful connect of people (stakeholder/ entrepreneur/ student/ industry) to know more about the technologies for the advancement of the technology and the progress of the society, he added.

DrJitendra Singh kicked off the campaign by inaugurating the Workshop & Exhibition on "Innovation and Sustainable Construction Materials & Technologies" organized by CSIR-Central Building Research Institute (CSIR-CBRI), Roorkee with an aim of moving towards Net Zero Emission and Zero Waste.

On the occasion, Dr. Jitendra Singh also released the Logo for CSIR's One Week One Lab Campaign. During the inaugural session, Secretary, DSIR & Director General, CSIR, Dr. N. Kalaiselvi said, the campaign is a unique initiation and an out of box idea of Dr. Jitendra Singh to reach out to people of India and to the world about the success stories of CSIR. Describing CSIR as the innovation engine of India, she said that all the 37 labs have to come out with lots of success stories in the next 7 years for a mid-term appraisal in 2030, to fulfill the vision of Prime Minister to make India an innovation hub of the world in 2047.

Dr. Kalaiselvi informed that the "One Week One Lab" campaign of CSIR is a way to establish the right connect and to showcase not only the technological breakthroughs & innovations in CSIR laboratories, but also Future Technologies on which CSIR labs are working. She said, the campaign will include events for Students Connect through interaction of Scientists and researchers of the laboratories with school students, who are the future Scientists, to inculcate the temper of science. The focus will be through CSIR's existing collaborations with schools and programs such as Jigyasa and Atal Tinkering Lab.

The campaign will also focus on academia and skill development, where interested students from varying domains get to know about the research activities and facilities of the CSIR laboratories and get a connect for future prospects. Another focus of the campaign is to support more and more Start-ups and entrepreneurship in the Nation with dissemination of science and wide spread of the technologies. Industries & MSMEs Meets are targeted to establish understanding between Science and Industry based on the requirement of the society or regional needs and to identify potential industries for co-development of Next Gen technologies and products. It will be an opportunity to create networks of Govt- Academia-Industry for faster deliveries and deployments of technologies.

Director, CSIR-CBRI, Prof. Pradeep Kumar Ramacharla gave a brief overview of the events scheduled throughout the week under the campaign including Technology Challenge Hackathon, Industry, MSME, Academia Meet, Students Connect programs, Entrepreneurship Opportunities, a Town Hall Meeting, and finally proposed the vote of thanks.

Directors from other CSIR laboratories also attended the inaugural session. CSIR-IICT, CSIR-NAL, CSIR-CIMAP & CSIR-NIScPR will be showcasing their technologies in the upcoming weeks to be a part of this campaign. CSIR has targeted to conclude this campaign during its next Foundation Day celebrations.

Council of Scientific & Industrial Research (CSIR), the largest public funded R&D organization in India, was set-up in 1942 and has been continuously evolving. Carrying out world-class research for the scientific and industrial research and development has been CSIR's hallmark.

Started with 5 laboratories in 1942, in its eight decades of journey CSIR has grown into an organisation with 37 labs of 3521 scientists, supported by 4162 technical staff, 2612 administrative & other support staff and about 5500 young scholars, that addresses every facet of scientific development required in the country.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1889195>



**Press Information Bureau
Government of India**

Ministry of Science & Technology

Sat, 07 Jan 2023

108th Indian Science Congress Concludes

Let's take the glorious tradition of Indian Science ahead - appeals Nobel Laureate Ada Yonath

India has a glorious tradition of scientific development. The Indian Science Congress has played a pivotal role in nurturing and furthering this tradition. Nobel Laureate Dr. Ada Yonath appealed all to take this glorious tradition ahead.

The 108th Indian Science Congress organised at Rashtrasant Tukdoji Maharaj Nagpur University concluded today. Ada Yonath was the chief guest for the Valedictory Function. The ceremony was held at the main venue. The President of the Indian Science Congress, Dr Vijayalakshmi Saxena, Vice Chancellor Dr Subhash Chaudhari, Divisional Commissioner, Nagpur Dr Vijayalakshmi Bidri and the newly elected President of the Indian Science Congress - Dr Arvind Saxena were present on the occasion.

In her speech, Yonath said, she has continued her scientific research even after two decades of being awarded the Nobel Prize. According to her, a researcher should never discontinue research work. She said, Indian scientists Dr Tanaya Bose and Dr Venkatraman Ramkrishnan helped her in the research. "I have always had high regards for Indian scientists. My guide Dr Ramchandran was an Indian scientist. He introduced me to the rich traditions followed by Indian scientists. The 108th Indian Science Congress has been extremely crucial in taking the glorious traditions ahead. Let's take the same to new heights", she appealed to the Ministry of Science and Technology.

Dr Vijayalakshmi Bidri said, "This national level event organised at Nagpur has been of great importance in boosting scientific temperament and love for science in the society."

Dr. Vijayalakshmi Saxena said that the Tribal Science Congress was organized for the first time. It received a good response at all levels. She informed that more than three thousand research papers were presented while more than fifty thousand delegates participated in the various events. She also expressed satisfaction that the event was a success in all respects.

Vice-Chancellor Dr Subhash Chaudhary thanked the local administration and educational institutions for their cooperation in organizing the Indian Science Congress. He also expressed his satisfaction that the Vigyan Mahakumbha was successfully organised after 50 years, in the centenary year of the university.

At the end of the program, outgoing president, Dr. Vijayalakshmi Saxena handed over the torch of the next Indian Science Congress to the newly appointed president, Dr. Arvind Saxena.

Awards to Scientists:

- Ashut Mukherjee Memorial Award - Prof. Ajay Kumar Sood
- Dr. C. V. Raman Birth Centenary Award - Prof. S. R. Niranjana
- S. N. Bose Birth Centenary Award – Prof. Subhash Chandra Parija

- S. K. Mitra Birth Centenary Award – Dr. Ranjan Kumar Nandy
- H. J. Bhabha Memorial Award – Dr. Kaushal Prasad Mishra
- D. S. Kothari Memorial Award – Dr. Shyamal Roy

Names of other award winners are as follows:

- Prof. R. C. Mehrotra Memorial Life Time Achievement Award – Dr. U. C. Banerjee - Amity University, Mohali.
- Prof. S. S. Katiyar Endowment Lecture Award – Dr. Kesturu S. Girish – Tumkur University, Karnataka.
- Prof. Archana Sharma Memorial Award in Plant Science – Dr. Rajiv Pratap Singh - BHU, Varanasi
- G. K. Manna Memorial Award – Dr. Basant Kumar Das – ICAR Kolkata

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Ministry of Science & Technology

Sat, 07 Jan 2023

Contribution of Women in STEM & Biodiversity Conservation Highlighted at the 10th Women Science Congress

The contribution of women in all walks of life, including STEM, as well as conservation of biodiversity, was highlighted at the 10th Women Science Congress (WSC), organised as a part of the 108th Indian Science Congress at Rashtrasant Tukadoji Maharaj Nagpur University during 5-6 January 2023.

Padmashri Smt. Rahibai Soma Popere, a farmer and conservationist, highlighted the crucial role women have played in biodiversity conservation and also elaborated about her campaign to help farmers return to native varieties of crops while Chief Guest Mrs. Kanchan Gadkari, Head, Seva Sadan Sanstha, spoke about self-reliance among women. Several eminent women scientists shared their research and professional experiences with the audience.

Dr. Nisha Mendiratta, Advisor & Head, WISE-KIRAN Division, Department of Science & Technology (DST), emphasized on the need for interventions to promote women in STEM. She highlighted that in tertiary education, the percentage of girls is more than 55, but after that, there are high numbers of dropouts - an issue that needs to be addressed. Dr. Mendiratta underlined the efforts of DST in plugging the gap areas and promoting women's participation in Science & Technology, benefiting more than 35000 girls and women in the last 8 years under various women-centric programs.

The experts discussed about the role of S&T in Women Empowerment; Opportunities in Food Science & Technology; Sustainable Development Goals; Science Communication, Role of Digitalization, etc.

A panel discussion was also organized wherein Dr. Indu Bala Puri, Scientist, DST, pointed out the importance of S&T-led development in rural areas. Dr. Suphiya Khan, Banasthali Vidyapith, asserted that innovation in research can excel in the output. Dr. Sangeeta Nagar, TIFAC, DST, briefed about the opportunities for women in the area of Intellectual Property Rights.

Dr. Zareena Qureshi, Principal, JNV Nagpur, shared the significance of the Vigyan Jyoti program for school girls to pursue a career in STEM fields. Dr. Sonal Dhabekar, beneficiary of the WOS-B program, highlighted how this program helped to reshape her scientific career after a long break.

Dr. Vijaylaxmi Saxena, General President of ISCA, appreciated the various initiatives of Govt. of India for empowering women. Dr. Kalpana Pande, Convener WSC, talked about the scientific temperament among women since ancient times. Around 5000 participants attended the 2-day event.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1889313>



Sat, 07 Jan 2023

Cryptography is the Future for Information Safety: TASK CEO

Mr. Srikanth Sinha, CEO, Telangana Academy for Skills and Knowledge (TASK), said that the subject of cryptography had been in use since ancient times, and in those days cryptography was used by kings and spies to make their communication unintelligible to others.

He said that cryptography had been in use since ancient times, and now cryptography was being used in computer science in the modern age.

Participating as chief guest in a two-day workshop on 'Cryptography and its uses' held at Kshatriya College of Engineering, Armoor, on Saturday, Mr. Srikanth Sinha said that the digital sector, including cryptography was being used for information security, especially in defence, banking, finance, space and other strategic fields, and its related fields such as block chain technology, artificial intelligence, and mission learning, were developing day by day in digital sector.

The programme was inaugurated by college chairman Aljapur Srinivas. Cryptography expert Motahar Reza said that mathematics was of utmost importance in cryptography and cryptography and mathematical sciences work in harmony with each other, so students who excel in mathematics will get more skill and advised the students to increase their awareness of mathematics.

Principal Professor R.K. Pandey explained the importance of cryptography and its uses to the students. Prof. Amog Katti, Gitam University, DRDO Senior Scientist Indiver Gupta (virtually), and others participated in the programme.

<https://www.thehindu.com/news/national/telegana/cryptography-is-the-future-for-information-safety-task-ceo/article66349829.ece>

India is Totally Self-Reliant in Space Technologies at a Low Cost: K. Sivan

Ex-ISRO Chairman K. Sivan says India has three bars of reliable launch vehicles, PSLV, GSLV, and GSLV Mk III.

In an extensive conversation with The Sunday Guardian, former ISRO Chairman K. Sivan discussed India's space programme's success story and other issues. Excerpts:

Q: What are the reasons behind India's leap in the space sector?

A: The Indian space programme started in the 1960s with the unique and noble vision of providing space-based services to the common man of the country. It was an innovative idea that for a country like India with its immense size and diversity, space technology is the only platform for fast-track development. This is because nearly 75-80% of the population is rural mass and resides in remote, unserved and underserved areas. In order to make India a developed country, it is possible only if the benefits of advanced technologies reach the doorsteps of this higher mass and space technology is being used as the tool to do the task. At the same time, to ensure uninterrupted services to the common man at a very low cost, it is essential that the required technologies be developed indigenously.

With this vision, India had developed all the launch vehicle technologies, including high-technology of cryogenic engines, advanced microwave sensing satellites, high throughput communication satellites, innovative space science missions, unique navigation satellite constellation and the required ground systems, all indigenously designed, realized at very low cost.

Now, India has three bars of highly reliable launch vehicles, namely, PSLV, GSLV, and GSLV Mk III, ferrying our advanced satellites into space for national development and applications. These advanced low-satellites provide low-cost services in all the areas of safety, security and quality of life for every common man. Our applications are unique in the sense, combining all the types and services of satellites, they provide real-time services for disaster warning and management, the livelihood of fishermen and their safety through custom-made apps, national natural resource management, supporting all the government schemes in various capacities for better governance, broadband connectivity to remote, unserved and underserved areas. Our science missions have very cost-effective innovative payloads and made many scientific discoveries as against very costly missions of other space faring nations.

In addition, because of the lower cost of Indian launch vehicles and their services, foreign customers preferred Indian launchers to launch their satellites, which earned a significant amount of money for the Government of India. In short, we are totally self-reliant in space technologies at low cost as well as providing launch services to other countries for a cost.

Considering our capabilities and success story, as part of space diplomacy, many nations had space collaborations to build and launch their satellites by India. As a space-faring nation, India is also providing training programs free of cost for professionals from aspiring nations.

Q: How do you view private participation in the Indian space industry and its future?

A: The participation of private industries in the Indian space sector is an excellent initiative by the Hon'ble PM and is the need of the hour. The satellite-based application is exponentially increasing which needs a huge number of satellites to be placed around the earth. This increased demand cannot be met by ISRO alone with the present capabilities, resources and manpower. Globally, there is a prediction that hundreds of thousands of satellites are to be launched in the near future for meeting various high-end applications. At present global space, the economy is about \$450 billion. 2% for the launch vehicle, 5% for spacecraft, 45% for applications and 48% for ground infrastructure. This is going to be increased multifold with the huge number of satellites and applications. At present, India's contribution to the global space economy is only about 2%, but if we are unlocking India's potential in the space sector, it is feasible to capture a significant amount of the global space economy. With these visions in mind, considering the fact that ISRO alone cannot meet the above requirements, private industries are allowed to carry out all space activities, namely, launching vehicles, building and launching spacecraft, realizing ground systems and providing applications. To implement the space sector reform which ensures private industries carry out space activities feasible, a single window authorizing mechanism (IN-SPACe) has been formed. The space policy and space act bill are also in the pipeline for making suitable ecosystems to carry out private space activities in India. Also, for helping private industries to do the space activities business with ease, for this high investment, highlight-risks, provisions are made to use all the easily built infrastructure of ISRO as well as to technologies transfer to industries for a minimal cost.

Considering the increased potential in the space sector and the supporting mechanism by the GOI, more than 140 start-up industries have already started space activities. This is significant with respect to this type of high-technology and high-risk areas.

The above private industries came forward to carry out the areas of space activities, namely, launch vehicle building, spacecraft building, launching of spacecraft, and producing ground equipment to provide space-based services. The results have started coming.

With this growth trajectory, I predict, in the near future, the Indian private industries are going to occupy a major portion of the space activities in India as well as capture a significant portion of the global space economy market.

Q: How will future missions like Aditya L1, Chandrayaan-3, XPOSAT and Gaganyaan benefit India?

A: Aditya-L1 Mission I is planned to study the sun's behaviour, especially its corona. This will provide insight into the study of global climate change, which will be useful for the most important climate change impact and for suitable management. Chandrayaan-3 Mission will demonstrate the technologies required for landing in another space body/planet. After landing, the lander and rover will carry out in-situ science experiments about the moon's water, minerals etc. This will give two advantages: (a) landing technologies for future human presence in space, (b) making use of the resources available on the moon for the benefit of humankind as well as to create future human habitats on the moon.

XPOSAT Mission is an x-ray polarimetry satellite, which will be useful for studying distant planets on various scientific discoveries.

Gaganyaan Mission is required to demonstrate technologies to send humans safely to space and bring them back safely to Earth. This will ultimately give way to creating a space station and technologies for human presence for a long duration in space. By doing so, various materials, medical applications, and precision equipment, which cannot be fabricated under a gravity environment on Earth, can be manufactured in space. These items will have future applications in health care, electronics and safety, security and quality of life on Earth.

Q: What is the future of ISRO and the Indian Space sector according to you?

A: ISRO will be concentrating on advanced technologies research and development in the space sector in the areas of launch vehicles, satellites and applications. Once these technologies are developed, they'll be transferred to industries for scaling up. The private industries will be working on mass production and providing mass services to society.

In future, the Indian space sector will be the combination of ISRO's R&D and scaling and production of space activities by industries. This combined ecosystem will take a global space leadership role.

Q: What are the current and future challenges the Indian space agency faces and how will it overcome them?

A: At present, though we had indigenized almost all the technologies, in mainly two areas, we still depend on foreign sources for (a) carbon-fibre; (b) electronics.

To make it fully indigenous, it is essential to be self-sufficient in these areas also. Regarding electronics, the Government has taken a semiconductor mission. With this initiative, the required electronics for launch vehicles and satellites will be supplied by Indian industries.

Regarding carbon fibre, R&D has been done by ISRO and DRDO along with industries. Encouraging results were seen. Efforts must be put into industrial mass production of this material to supply launch vehicles and satellite programs. Other important strategic materials development is also being carried out by ISRO with the help of industries, which has to be speeded up so that we can be 100% self-sufficient in all the areas of space activities in India.

<https://www.sundayguardianlive.com/news/india-totally-self-reliant-space-technologies-low-cost-k-sivan>

