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Wed, 05 Jan 2022

भारत ने मिसाइलों से दुश्मन को किया आगाह

By Samir Chakravarti

भारतीय सीमा पर जिस तरह से तनाव बढ़ रहा है, उसे देखते हुए डीआरडीओ चौकन्ना हो गया है। भविष्य की जरूरतों को देखते हुए डीआरडीओ तेजी से स्वदेशी मिसाइलों की टेस्टिंग कर रहा है, ताकि भारत की सैन्य शक्ति इतनी मजबूत तो हो ही कि वह किसी भी अप्रत्याशित खतरे का बेहिचक मुकाबला कर सके। वर्ष 2021 की शुरुआत में डीआरडीओ ने 25 जनवरी को ओडिशा के इंटीग्रेटेड टेस्ट रेंज से न्यू जेनरेशन के आकाश मिसाइल की सफल टेस्टिंग की। फिर 27 अप्रैल को हवा से हवा में मार करने में सक्षम पायथन-5 का ट्रायल किया। इस मिसाइल को लाइट कॉम्बैट एयरक्राफ्ट (एलसीए) तेजस में लगाया गया है। 27 सितंबर को आकाश मिसाइल के एडवांस अवतार आकाश प्राइम की फ्लाइंग टेस्टिंग हुई। 27 अक्टूबर को अग्नि-5 की सफल लॉन्चिंग हुई।

अग्नि-5 सतह से सतह पर वार करने वाली एक इंटरकॉन्टिनेंटल बैलिस्टिक मिसाइल है, जिस पर पंद्रह सौ किलोग्राम का परमाणु हथियार लगाया जा सकता है। इसकी स्पीड ध्वनि से 24 गुना ज्यादा है, यानी यह एक सेकंड में 8.16 किलोमीटर की दूरी तय करती है। इसकी मारक क्षमता 5000 किलोमीटर है। 8 दिसंबर को ब्रह्मोस सुपरसोनिक क्रूज के एयर वर्जन की टेस्टिंग की गई। इसे सुपरसोनिक एयरक्राफ्ट सुखोई-30 एमकेआई से छोड़ा गया। साल 2021 में डीआरडीओ ने औसतन हर महीने एक से ज्यादा मिसाइलों की टेस्टिंग की है।



देश में विकसित स्टैंड ऑफ एंटी टैंक मिसाइल को डीआरडीओ ने राजस्थान के पोखरण फायरिंग रेंज से 11 दिसंबर को हेलीकॉप्टर से छोड़ा। इसमें मिलीमीटर वेव सीकर है और यह 10 किलोमीटर तक के टारगेट को ध्वस्त कर सकती है। डीआरडीओ ने 13 दिसंबर को स्मार्ट यानी सुपरसोनिक मिसाइल असिस्टेंट रिलीज ऑफ टारपीडो का परीक्षण किया। एंटी सबमरीन मिसाइल स्मार्ट की खासियत यह है कि टारपीडो को मिसाइल के जरिए छोड़ा जाएगा और मिसाइल सुपरसोनिक स्पीड से आगे बढ़ेगी। समुद्र से कुछ किलोमीटर की दूरी पर इस मिसाइल सिस्टम से टारपीडो अलग होकर लक्ष्य को कुछ ही सेकंड में नष्ट कर देगा।

18 दिसंबर को अग्नि सीरीज की सबसे एडवांस मिसाइल अग्नि प्राइम का सफल परीक्षण हुआ। यह सतह से सतह पर मार करने वाली एक बैलिस्टिक मिसाइल है, जो परमाणु हथियार ले जाने में सक्षम है। इसकी रेंज 1 हजार किलोमीटर से 2 हजार किलोमीटर है। डीआरडीओ ने पहली बार छोटी दूरी की सतह से सतह पर मार करने वाली बैलिस्टिक मिसाइल प्रलय का महज 24 घंटे के भीतर दो बार सफल परीक्षण किया। इसे पृथ्वी मिसाइल की प्रणाली पर बनाया गया है। यह मिसाइल 150 से 500 किलोमीटर की दूरी

तक दुश्मन के टारगेट को बरबाद कर सकती है। इसका निशाना अचूक है, अगर टारगेट एक जगह से दूसरी जगह चला जाता है तो यह मिसाइल हवा में ही रास्ता बदलकर टारगेट का पीछा करती है और उसे तबाह कर देती है।

इसे आसानी से बॉर्डर पर तैनात किया जा सकता है। यह मिसाइल पूरी तरह स्वदेशी है, जिसकी पेलोड क्षमता 500 से 1000 किलोग्राम है। भारतीय सेना के पास जो मिसाइलें हैं, उनमें 90 किलोमीटर दूरी तक मार करने वाला स्मर्च मल्टी बैरल रॉकेट लॉन्चर है। उससे ज्यादा दूरी के लिए प्रहार है, जो कि डेढ़ सौ किलोमीटर तक मार करती है। वहीं पृथ्वी ढाई सौ किलोमीटर से ज्यादा मार करती है। क्रूज मिसाइल ब्रह्मोस की रेंज अब बढ़ाई जा रही है। नेक्स्ट जेनरेशन ब्रह्मोस की रेंज 700 किलोमीटर से भी ज्यादा होगी। जल्द ही इसका प्रॉडक्शन उत्तर प्रदेश में शुरू होगा। इसके बाद अग्नि सीरीज की मिसाइलों का नंबर आता है, जो कि 750 किलोमीटर से लेकर 5000 किलोमीटर तक मार करती हैं। अग्नि की पहली मिसाइल यानी अग्नि-1 साढ़े सात सौ से एक हजार किलोमीटर तक मार करती थी। उसके बाद अग्नि-2, अग्नि-3, अग्नि-4 और अब अग्नि-5 है। एक और क्रूज मिसाइल निर्भय, जो सबसोनिक है, उसका भी सफल परीक्षण हो चुका है। उसकी रेंज 1000 किलोमीटर तक है। इसके अलावा भारतीय नौसेना के पास के- सीरीज की मिसाइलें हैं, जिनमें से पहली मिसाइल सागरिका का परीक्षण हो चुका है, जो कि किसी सबमरीन से लॉन्च की जाएगी और 750 किलोमीटर दूरी तक मार करेगी। इन सबमें भारत लगातार अपग्रेडेशन करता जा रहा है, जिससे साफ है कि सीमा पर भारत से कहीं ज्यादा टेंशन उसके दुश्मनों की बढ़ने वाली है।

<https://live7tv.com/news/india-to-be-aware-of-the-enemy-from-missiles/>



Wed, 05 Jan 2022

Chandigarh finalises draft proposal for cyber security centre

To clamp down on cyber crimes in the city, the Chandigarh administration has finalised a draft proposal for the setting up of a cyber security centre.

Chandigarh: To clamp down on cyber crimes in the city, the UT Administration has finalised a draft proposal for the setting up of a cyber security centre.

The draft was discussed with the experts from Defence Research and Development Organisation (DRDO) on Tuesday. The Chandigarh Police is the nodal agency which will run and manage the centre, which is likely to be named, "Centre for Cyber Security Operation (CenCOP)".

UT adviser Dharam Pal said, "It was decided during the meeting to prepare a final proposal for setting up the centre and send it to the MHA for approval at the earliest."

"Cyber security will be one of the main challenges in the coming years and we want to lead the way in the region in meeting the new-age challenges. Apart from research and analysis work, strategies will also be devised in anticipation of future challenges. The centre is most likely to be established within this year under the supervision of the police," said Pal. Pal said anti-drone technology will also be part of the proposed centre.



The Chandigarh Police is the nodal agency which will run and manage the cyber security centre. (Getty Images/iStockphoto)

<https://www.hindustantimes.com/cities/chandigarh-news/chandigarh-finalises-draft-proposal-for-cyber-security-centre-101641327424824.html>

COVID 19: DRDO's Contribution



Press Information Bureau
Government of India

Ministry of Defence

Tue, 04 Jan 2022 3:14PM

PM inaugurates and lays the foundation stone of various developmental projects in Imphal, Manipur

“The North East, which Netaji called the gateway to India's independence, is becoming the gateway to fulfilling the dreams of a new India”

“We are working to realise the possibilities in the North East”

“Today the youth of the country are taking inspiration from the players of Manipur”

“From a ‘blockade state’, Manipur has become a state promoting international trade”

“We also have to maintain stability in Manipur and take Manipur to new heights of development. Only the double engine government can do this work”

Prime Minister Shri Narendra Modi inaugurated 13 Projects worth around Rs. 1850 crores and laid the foundation stone of 9 projects worth around Rs 2950 crore in Imphal, Manipur today. These projects relate to diverse sectors such as Road Infrastructure, Drinking Water Supply, Health, Urban Development, Housing, Information Technology, Skill Development, Art and Culture, among others.



The Prime Minister laid the foundation stone of construction of five National Highway Projects to be built at a cost of more than Rs 1700 crore. He inaugurated the Steel Bridge built over the Barak River on NH-37, at a cost of over Rs 75 crore, which would decongest traffic between Silchar and Imphal. He also dedicated to the people of Manipur 2387 mobile towers built at a cost of around Rs 1100 crores.

Prime Minister inaugurated Rs.280 crore worth ‘Water Transmission system of Thoubal Multi-purpose project’, which will provide drinking water supply to the Imphal city; the Water Supply Scheme project built at the cost of Rs 65 crore, to provide safe drinking water to residents of ten habitations of Tamenglong district and the ‘Augmentation of Senapati District Headquarter Water Supply Scheme’ built at a cost of Rs. 51 crore to provide a regular water supply to the residents of the area.

The Prime Minister also laid the foundation stone of a ‘State of the Art Cancer Hospital’ in Imphal worth around Rs. 160 crore on a PPP basis. He inaugurated the ‘200 Bedded Covid Hospital at Kiyamgei’ which has been set up at a cost of about Rs. 37 crore in collaboration with DRDO. He inaugurated three projects under ‘Imphal Smart City Mission’, developed at a cost of more than Rs 170 crore, including the Integrated Command and Control Centre (ICCC), ‘Development of Western Riverfront on Imphal River (Phase I)’ and ‘Development of Mall Road at Thangal Bazar (Phase I)’.

The Prime Minister also laid the foundation stone of ‘Centre for Invention, Innovation, Incubation and Training (CIIT)’ to be built in the state at a cost of about Rs 200 crore. He also laid the foundation stone for the construction of the Manipur Institute of Performing Arts at Gurgaon, Haryana, to be built at a cost of more than Rs 240 crore.

Addressing the gathering, the Prime Minister said a few days from now, on January 21, would be the 50th anniversary of Manipur getting statehood. This fact, along with the occasion of Amrit Mahotsav on 75 years of its independence is a major inspiration in itself.

Paying homage to the bravery of the people of Manipur, the Prime Minister said the belief in freedom among the people of the country, started here from the land of Moirang, where Netaji Subhash's army hoisted the national flag for the first time. The North East, which Netaji called the gateway to India's independence, is becoming the gateway to fulfilling the dreams of a new India. He reiterated his belief that the eastern and north eastern parts of India will be the source of India's progress and this is visible in the growth of the region today.

The Prime Minister congratulated the people of Manipur for the schemes for which the foundation stone has been laid and were inaugurated today. He thanked the people of Manipur for the formation of a stable government that is governing with full majority and with full impact. He stressed that due this stability and choice of the people of Manipur achievements like 6 lakh farmer families getting hundreds of crore rupees under Kisan Samman Nidhi; 6 lakh poor families getting benefits under PM Garib Kalyan Scheme; 80 thousand houses under PMAY; free medical treatment to 4.25 lakh patients under Ayushman Yojna; 1.5 lakh free gas connections; 1.3 lakh free electricity connections; 30 thousands toilets; more than 30 lakh free vaccine doses and oxygen plants in every district of the state could become reality.

The Prime Minister recalled that even before he became the Prime Minister, he visited Manipur many times. He said he understands their pain, "that's why after 2014, I have brought Delhi - Government of India to your doorstep." Every officer and Minister was asked to visit the region and serve the people as per their local needs. "You can see that there are five important faces from the region in key portfolios in the Council of Ministers ", the Prime Minister pointed out.

The Prime Minister noted that the hard work of the government for seven years is visible in the entire North East and especially in Manipur. Today Manipur is becoming a symbol of a new work culture of change. These changes are for Manipur's Culture and for their care. Connectivity is also a priority in this change and creativity is equally important, he said. The Prime Minister elaborated that the Projects of road and infrastructure along with better mobile networks will strengthen connectivity. CIIT will contribute to the creativity and innovation spirit of the local youth. Modern Cancer hospital will add to the dimension of care and the Manipur institute of Performing Art and renovation of Govind Ji Mandir will preserve the cultural heritage.

The Prime Minister said that his Government has resolved to 'Act East' for the Northeast. He said God has given so many natural resources, so much potential to this region. There are so many possibilities for development and tourism here. He added that work is now being done to realise these possibilities in the North East. Northeast is now becoming the gateway to India's development, he added. The Prime Minister said Manipur has been a state giving one of the rarest gems for the country. The youth here and especially the daughters of Manipur have made the country proud all over the world. Especially today the youth of the country are taking inspiration from the players of Manipur.

The Prime Minister said today, due to the continuous efforts of the double engine government, there is no fire of extremism and insecurity in this region, but there is light of peace and development. Hundreds of youths across the North East have left arms and joined the mainstream of development. The Prime Minister said the agreements which were pending for decades, the current government has taken these historical accords to conclusion. From a 'blockade state', Manipur has become a state giving way for international trade.

He said this decade of the 21st century is very important for Manipur. He lamented the loss of time in the past. He added that there is not a single moment now. "We also have to maintain stability in Manipur and also take Manipur to new heights of development. And only the double engine government can do this work", he emphasized.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1787385>

आक्सीजन प्लांट का ट्रायल-रन सफल, स्टेबलाइजर और चेंजओवर के लिए लिखा पत्र

पानीपत: सिविल अस्पताल में तैयार आक्सीजन प्लांट का ट्रायल-रन सफल रहा है। कुछ स्पेशल न्यू बॉर्न चाइल्ड केयर यूनिट (एसएनसीयू) सहित दूसरे वार्डों में मरीजों को आक्सीजन भी दी गई है। अब प्लांट में स्टेबलाइजर और चेंजओवर लगना है, ताकि बिजली के उतार-चढ़ाव से मशीनरी में फाल्ट न आए। इसके लिए लार्सन एंड टर्बो (एलएंडटी) के अधिकारियों को पत्र भेजा गया है।

बता दें कि शहर विधायक प्रमोद विज ने छह अक्टूबर-2021 को इस प्लांट का उद्घाटन किया था। इस प्लांट में 1000 लीटर प्रति मिनट आक्सीजन तैयार होगी। अस्पताल के डिप्टी एमएस डा. अमित पोरिया ने यह जानकारी दी है। उन्होंने बताया कि प्लांट में हवा से तैयार आक्सीजन का सैंपल एलएंडटी की ओर से लैब भेजा गया था। गुणवत्ता रिपोर्ट 96 प्रतिशत मिली है, जो बहुत अच्छी है। प्लांट को रनिंग में लाने में देरी का कारण, पाइपलाइन की जांच, सभी वाल्व की जांच व अनावश्यक वाल्व को बंद कराना रहा। सबकुछ कंप्लीट होने के बाद ही ट्रायल रन किया गया, सफल रहा है। कुछ उपकरण हैं, सेफ्टी के मद्देनजर लगने बहुत जरूरी हैं। बैकअप के लिए अस्पताल प्रशासन में 50 बड़े सिलेंडर रिफिल कराकर रखे गए हैं।

कम खपत में सिलेंडरों से आपूर्ति

डा. पोरिया ने बताया कि प्लांट में स्टेबलाइजर और चेंजओवर लगने के बाद देखा जाएगा कि कम मरीजों पर इसे रनिंग करने का खर्च अधिक तो नहीं आएगा। अस्पताल में 6000 लीटर क्षमता का रिफिलिंग टैंक भी है। आक्सीजन पर मरीजों की संख्या कम होती है तो टैंक की तुलना में सिलेंडर से आक्सीजन की आपूर्ति सस्ती पड़ती है। ऐसा ही प्लांट चलाकर भी देखा जाएगा। मरीज अधिक हैं तो टैंक-प्लांट से सेंट्रल सप्लाई बेहतर है।

ऐसे तैयार हुआ प्लांट

रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) ने प्लांट को तैयार किया है। भारतीय राष्ट्रीय राजमार्ग प्राधिकरण (एनएचएआइ) ने टिन शेड-फाउंडेशन (सिविल वर्क) किया है। लार्सन एंड टर्बो (एलएंडटी) कंपनी के इंजीनियरों कंप्रेसर, ड्रायर और टैंक (कंप्लीट प्लांट) स्थापित किया है।

सिविल अस्पताल को होगी 50 हजार मासिक बचत

आक्सीजन प्लांट से आपूर्ति होने पर अस्पताल को लगभग 50 हजार रुपये मासिक बचत होगी। आक्सीजन सिलेंडर रिफिलिंग नहीं कराने पड़ेंगे। इसी के साथ भूतल से ऊपर की सभी मंजिलों में सिलेंडर पहुंचाने की सिरदर्दी भी कम होगी।

ऐसे बनती है हवा से आक्सीजन:

हवा में 21 (लगभग पांचवां हिस्सा) प्रतिशत आक्सीजन, 78 प्रतिशत नाइट्रोजन और एक प्रतिशत अन्य गैसों जैसे हाइड्रोजन, नियोन, जीनोन, हीलियम और कार्बन डाइआक्साइड होती हैं।

वातावरण से हवा को कंप्रेस किया जाता है। फिल्टर करने के बाद टैंक में जमा किया जाता है।

एक वयस्क को चाहिए 550 लीटर आक्सीजन

डिप्टी सिविल सर्जन डा. कर्मवीर चोपड़ा ने बताया कि एक व्यक्ति को 24 घंटे में करीब 550 लीटर शुद्ध आक्सीजन चाहिए। श्रम करने पर अधिक आक्सीजन चाहिए।

जरूरी दवा आक्सीजन:

कानूनी रूप से यह आवश्यक दवा है। वर्ष 2015 में इसे अति आवश्यक दवाओं की सूची में शामिल किया गया। विश्व स्वास्थ्य संगठन की आवश्यक दवाओं की लिस्ट में यह शामिल है।

<https://www.jagran.com/haryana/panipat-oxygen-plants-trialrun-successful-22353894.html>

हिन्दुस्तान

Wed, 05 Jan 2022

ऑक्सीजन प्लांट से 60 बेड को आपूर्ति शुरू

खगड़िया: कोरोना के दूसरी लहर के दौरान ऑक्सीजन की सर्वाधिक किल्लत हुई थी। उस समय ऑक्सीजन के लिए पूरे देश में मारामारी थी। हालांकि खगड़िया में मरीजों को ऑक्सीजन की जरूरतों के लिए किसी भी प्रकार की परेशानी नहीं हुई थी। इसके बाद डीआरडीओ द्वारा सदर अस्पताल में ऑक्सीजन प्लांट लगाने को लेकर स्वीकृति दी गई और यह प्रक्रिया शुरू होते ही ऑक्सीजन प्लांट अब पूरी तरह से तैयार हो चुका है। इसके साथ ही अब आपूर्ति भी बेडों तक शुरू कर दिया गया है। अलग बात है कि लक्ष्य के अनुरूप अब तक बेडों तक ऑक्सीजन आपूर्ति किए जाने की प्रक्रिया शुरू नहीं हो पाई है। बावजूद अब मरीजों की सुविधा बढ़ी है और ऑक्सीजन सिलिंडर के माध्यम से ऑक्सीजन आपूर्ति किए जाने की झंझट से मुक्ति मिल गई है। इसे प्रयास कर शत प्रतिशत लक्ष्य यानि 74 बेड तक आपूर्ति सुनिश्चित कराने को लेकर प्रयास किए जाने की जरूरत है।

शुरू हुई ऑक्सीजन पाइपलाइन से आपूर्ति: सदर अस्पताल से मिली जानकारी के अनुसार डीआरडीओ द्वारा लगाए गए ऑक्सीजन प्लांट द्वारा 60 बेडों पर निर्वाह रूप से आपूर्ति शुरूकरदिया गया है। इसको लेकर मॉकड्रिल का काम भी किया जा चुका है। इस दौरान ऑक्सीजन की प्यूरिटी 97 प्रतिशत तक आंकी गई। वहीं आपूर्ति की रफ्तार भी बेहतर बताया गया था। जानकारी के अनुसार सदर अस्पताल में इमरजेंसी वार्ड, ओटी, आई व जेनरल वार्ड के निर्धारित 74 बेडों के तुलना में 60 बेडों में आपूर्ति शुरू कर दी गई है। शेष बचे हुए हिस्से में आपूर्ति का काम पूरा करने को लेकर प्रयास किया जा रहा है। इससे अब बाहर से ऑक्सीजन सिलेंडर में ऑक्सीजन भरने की समस्या से मुक्ति मिल जाएगी।



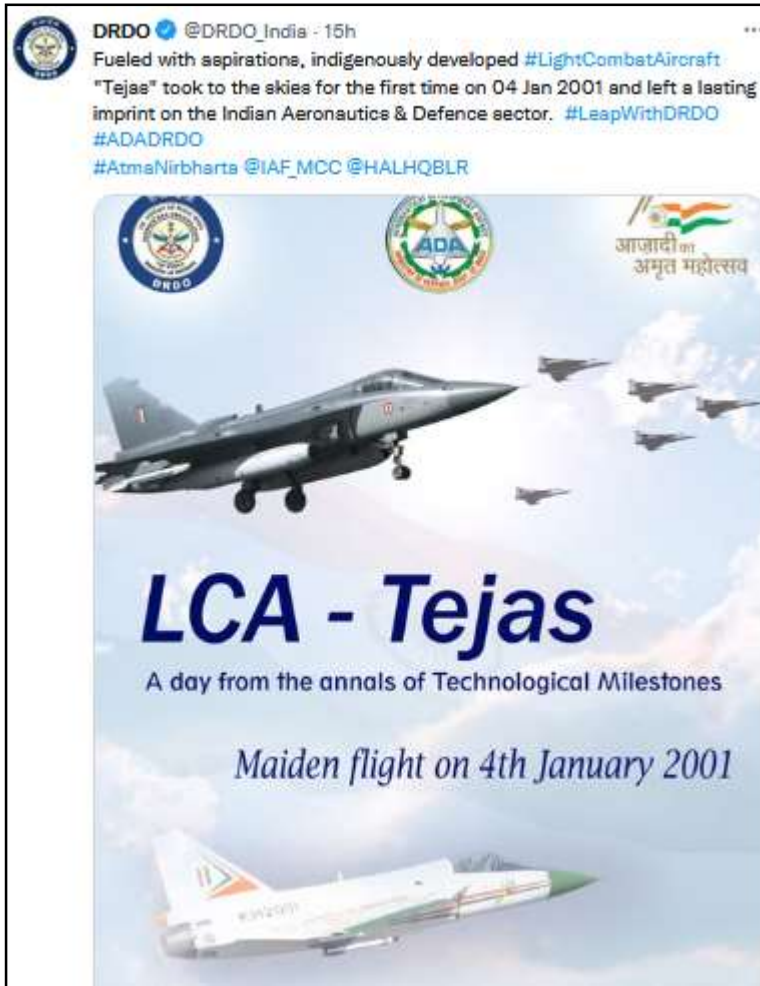
पहले से 50 बेड पर की जा रही है पाइपलाइन से आपूर्ति

कोरोना की दूसरी लहर के बाद से विभिन्न संगठनों द्वारा आगे आना शुरू हो गया था। इसी कड़ी में एक एनजीओ द्वारा सदर अस्पताल को 50 बेड तक ऑक्सीजन की आपूर्ति पाइपलाइन के माध्यम से कराया जा चुका है। जिसका लाभ कई दिनों से मरीजों को मिल रहा है। एनजीओ की इस बेहतर पहल की सराहना की जा रही है। उपाधीक्षक ने बताया कि इसका कनेक्शन सिलेंडर से किया गया है।

ऑक्सीजन पाइप लाइन से आपूर्ति की जा रही है। सदर अस्पताल में पर्याप्त मात्रा में ऑक्सीजन सिलिंडर है। आलोक रंजन घोष, डीएम, खगड़िया।

<https://www.livehindustan.com/bihar/khagaria/story-supply-started-to-60-beds-from-oxygen-plant-5496131.html>

DRDO on Twitter



04 January 2022



04 January 2022

Navy's P-8I surveillance aircraft fleet finds second home in Goa

Till now, the aircraft were based in Tamil Nadu on the eastern seaboard.

New Delhi: In a big boost to the Navy's reconnaissance and anti-submarine capabilities along the western coast, its P-8I aircraft began operations from the INS Hansa Naval Air Base in Goa. Till now, the aircraft were based in Tamil Nadu on the eastern seaboard.

The Navy stated, "Boeing P-8I aircraft commenced operations from INS Hansa, Goa with two aircraft arriving" on December 30. The aircraft, it said, "were inducted after fitment of indigenous equipment and Flight Acceptance Trials".

The two aircraft were welcomed by a formation of Navy's MiG-29k.

The Navy had acquired the first batch of eight P-8I aircraft in 2013, which are stationed at INS Rajala Naval Air Base at Akakkonam in Tamil Nadu.

The second batch of four additional P-8I aircraft will be based at the Indian Naval Air Squadron 316, which will be commissioned at INS Hansa.

The Navy had bought eight of these aircraft in an over US\$ 2.1 billion agreement in 2009, which included an optional clause to buy four more. From the total 12, just one aircraft is pending delivery, as the 11th was delivered to the Navy in October.

The P-8I, manufactured by American aviation giant Boeing, is designed for long-range anti-submarine warfare (ASW), anti-surface warfare (ASuW), and intelligence, surveillance and reconnaissance (ISR) missions.

Last year, the US government had approved the sale of six more P-8I aircraft to India, for which the Acceptance of Necessity had been granted by the Defence Acquisition Council headed by Defence Minister Rajnath Singh in November 2019. However, the deal worth nearly US\$ 2.4 billion is still in progress.

<https://indianexpress.com/article/india/navy-p-8i-surveillance-aircraft-fleet-ins-hansa-go-7706445/>



The P-8I aircraft was welcomed at the naval airbase by two MiG-29K naval fighter aircraft. (Source: Indian Navy)

मजबूती: भारतीय नौसेना ने गोवा में तैनात किए दो P-8I सर्विलांस एयरक्राफ्ट, अरब सागर में चीन-पाक की साजिशें होंगी नाकाम

सार

हाल के दिनों में पाकिस्तान और चीन की नौसेना ने अपनी क्षमताओं में इजाफा करने के साथ क्षेत्र में कई संयुक्त युद्धाभ्यास किए हैं। भारत ने इसी खतरे को भांपते हुए अरब सागर में निगरानी तेज करने का फैसला किया है।

विस्तार

नई दिल्ली: अरब सागर और आसपास बढ़ रही पाकिस्तान और चीन की नौसेना गतिविधियों का मुकाबला करने के लिए भारतीय नौसेना ने पनडुब्बीरोधी और टोही विमान पी-81 की पश्चिमी समुद्र तट पर गोवा में तैनाती की है। आईएनएस हंसा पर इनकी तैनाती के बाद इलाके में भारत की टोही क्षमताओं में इजाफा होगा।

भारतीय नौसेना के प्रवक्ता ने बताया कि दो बोइंग पी-81 विमान 30 दिसंबर 2021 को भारत पहुंचे थे। मंगलवार को इन्होंने आईएनएस हंसा पर काम शुरू कर दिया। यहां तैनात करने से पहले इनमें स्वदेशी उपकरण लगाए गए और जरूरी परीक्षण किए गए। भारतीय नौसेना ने आठ पी-81 विमानों की पहली खेप 2013 में मंगाई थी, जो अराक्कोनम में आईएनएस राजाली पर तैनात है।



भारतीय नौसेना ने गोवा में तैनात किए दो पी-8आई एयरक्राफ्ट। - फोटो : ANI

बताया गया है कि नए एयरक्राफ्ट नौसेना की स्कवाड्रन 316 में शामिल हुए हैं। हाल के दिनों में पाकिस्तान और चीन की नौसेना ने अपनी क्षमताओं में इजाफा करने के साथ क्षेत्र में कई संयुक्त युद्धाभ्यास किए हैं। भारत ने इसी खतरे को भांपते हुए अरब सागर में निगरानी तेज करने का फैसला किया है।

गौरतलब है कि पी-8आई एयरक्राफ्ट अत्याधुनिक सेंसरों से लैस है। भारतीय नौसेना के पास पहले से ही 12 से ज्यादा पी-8आई विमान हैं, जिन्हें पहले ही हिंद महासागर में चीन के पोतों और पनडुब्बी पर निगरानी रखने के लिए तैनात किया गया है।

अमेरिकी कंपनी बोइंग बनाती है पी-8आई एयरक्राफ्ट

बोइंग भारतीय नौसेना के पी-8आई बेड़े के पायलटों को प्रशिक्षण, स्पेयर पार्ट, फील्ड सेवा आदि में मदद करती है। पी-8आई में अतुलनीय समुद्री सैन्य परीक्षण और पनडुब्बी रोधी युद्धक क्षमता के अलावा इन्हें आपदा और मानवीय मिशनों में भी बखूबी इस्तेमाल किया गया है। नौसेना को इसी साल जुलाई में 10वां विमान मिला था। इसके बाद अक्टूबर में भारत को 11वां एयरक्राफ्ट सौंपा गया था।

<https://www.amarujala.com/india-news/indian-navy-gets-two-more-poseidon-8i-maritime-reconnaissance-aircraft-from-us-know-how-it-will-monitor-chinese-activity>

IAF developing real-time health monitoring system for pilots that will enhance flight safety

Fitness and sound health of aircrew is imperative as flying, particularly in the fighter aircraft stream, involves physical, physiological and psychological stress

By Vijay Mohan

Chandigarh: The Indian Air Force is developing a real-time health monitoring system for aircrew that will continuously assess the fitness levels of pilots during flight and relay a warning in case of any abnormality.

According to sources, the Air Force has already drawn up the conceptual requirements for the system and is taking the project forward in collaboration with the industry as well as the medical establishment.

“What we are looking at,” an IAF officer said, “is a wearable sensor like a wrist band or a stick-on patch that records the pilot’s parameters like blood pressure, temperature, heart rate and oxygen saturation level continuously or at periodic intervals and is integrated with the aircraft’s communication system so that the information is transmitted to ground control.”

In case of any deviation in parameters, the sensors can sound an alarm and air traffic controllers and medical specialists can take preventive or corrective steps by advising the aircrew on how to handle the situation, he added. This is a step further in enhancing flight safety as a large proportion of aircraft accidents are attributed to human factors.

Fitness and sound health of aircrew is imperative as flying, particularly in the fighter aircraft stream, involves physical, physiological and psychological stress. Fighter pilots are exposed to high g-levels, noise, lower oxygen levels and high cognitive workload.

“With in-flight refuelling, the duration of fighter flying has increased, which also enhances associated risks like fatigue and physical discomfort. Remaining confined to restricted cockpit space for a long time with little physical movements also has adverse effects on the body and mind,” an officer said.

Recently, the IAF’s newly inducted Rafale fighter jets had flown non-stop to India from France, a journey covering about 7,000 km in more than eight hours. It was an unprecedented cockpit experience for the IAF.

Even though it was a level flight at sub-sonic speed with much reduced exposure to g-levels, the pilots had to remain alert and carry out all in-flight procedures, besides sitting in the same position in a cramped space for an extremely long time.

A study published by the IAF’s Institute of Aerospace Medicine, Bengaluru, in 2021 revealed that the pain and discomfort following a six-hour prolonged restraint sitting were highly noticeable along with a significant change in the calf circumference and other physiological parameters due to effects of venous pooling. “The effects so observed could have potential flight safety implications and affect mission effectiveness,” the study observed.

<https://www.tribuneindia.com/news/nation/iaf-developing-real-time-health-monitoring-system-for-pilots-that-will-enhance-flight-safety-358117>



Photo for representational purpose only.
iStock

Opinion: 2022 is a promising year for India's defence capabilities

Despite the pandemic, 2022 promises to be a watershed year for India's goal of building a domestic military industrial complex — and becoming a global defence manufacturing hub

By Prakash Chandra

The new year looks set to bring cheer to India's armed forces as the government strengthens its resolve to have a leaner and meaner military. The year gone by saw efforts gathering steam to modernise the Indian Army, the Indian Navy, and the Indian Air Force, with a two-pronged approach: military reforms, alongside the hastening of weapons acquisition, and upgrades in the three services.

India faces unprecedented strategic challenges across land, sea and air from belligerent neighbours to its east and west, a vulnerable pelagic stretch — from the Western Pacific to the Indian Ocean — and a struggle for air superiority in the Himalayas. With the country's armed forces under material and financial pressure, its defence planners have an unenviable task in speeding up military reforms while simultaneously balancing the budget.



Restructuring the military is the centre-piece of long overdue defence reforms, aiming to create a viable force structure by enhancing inter-service communication and interaction. The Ministry of Defence seeks to achieve this through establishing integrated theatre commands — a concept that many governments toyed with in the past, but never had the will to implement.

The existing system of operational commands of the services is handicapped by the fact that they are neither co-located nor share areas of responsibility, leading to a lack of inter-operability in the three arms, which would be a serious constraint in a conflict situation. Theatre commands help overcome this by integrating the three services, and synergising their operations in the terrestrial, aerial and oceanic domains.

Fortunately, innovative ideas are redefining the way the armed forces manage their resources. A good example is the new defence procurement process called the Integrated Capability Development Plan that uses intra-service and inter-service financial mapping and prioritisation to determine essential acquisitions. This involves data crunching making it easier for policy-makers to earmark sufficient resources for the military while finding a balance against competing demands in other sectors such as health or agriculture.

Statistics show that India's defence expenditure dropped from 2.4 percent of gross domestic product (GDP) in 2011-12 to 2.1 percent of GDP in the last fiscal. This should ring alarm bells since the Standing Committee on Defence, in 2018, had categorically endorsed a fixed budget of 3 percent of GDP for the military.

Having pegged India's defence production mark at an ambitious \$25 billion in the next four years (which includes military exports of \$5 billion), the government has introduced several schemes to ramp up local manufacturing, thereby avoiding shopping abroad. This will help the country reach its target of 75 percent 'atmanirbharta' or self-reliance in defence equipment manufacture before this decade is out.

But indigenisation in defence through initiatives like 'Make in India' can only succeed with the active participation of industry, start-ups, and innovators. Like militaries across the world that depend on private industry to bulwark their modernisation efforts, India too has increased the level of industry inputs in defence, and has opened the door wider to industry participation in the sector.

Thus the Innovations for Defence Excellence (IDEX) launched by the government to work with academia, industry, and startups to innovate solutions for the military seems to be paying off handsomely. Nearly 200 startups are currently working on innovative defence technologies, and many of them have shown interest in using the IDEX platform to incubate and develop their ideas.

The Bengaluru-based Tonbo Imaging makes advanced imaging and sensor systems for the military that finds application in reconnaissance, infrastructure security, and transportation safety. Combat Robotics India in Pune is developing amphibious ground vehicles for all terrain operations, while the Tamil Nadu-based Vinveli builds customised drones for the army and paramilitary forces. The Kochi-based EyeROV has developed India's first underwater drone: albeit expressly meant for remote inspection of offshore assets, it has enormous potential for augmenting the navy's anti-submarine warfare capabilities.

Similarly, Torus Robotics India in Tamil Nadu is the first defence startup to indigenously design and develop India's largest electric unmanned ground vehicle (UGV) equipped with a robotic arm. Modular platforms such as these are force multipliers that defence agencies would want to take advantage of. The Defence Research and Development Organisation (DRDO), for instance, has ordered plug and play payloads like UGVs from Torus Robotics.

Military aerospace is another critical domain where several startups are involved in developing prototypes, products, and technologies. For far too long has the absence of aero-engines plagued India's emerging defence ecosystem as all our indigenously-produced aircraft are powered by imported engines. But this may be rectified soon if the Indo-French agreement to jointly build aero-engines in India takes off under New Delhi's strategic partnership model — where Indian industry collaborates with foreign vendors. Safran, the French aerospace company which provides the fighter jet Rafale's engines, is likely to partner with an Indian firm to manufacture the Kaveri engine for the Indian Light Combat Aircraft (LCA). The LCA currently uses GE Aviation engines.

So despite the pandemic, 2022 promises to be a watershed year for India's goal of building a domestic military industrial complex — and becoming a global defence manufacturing hub.

(Prakash Chandra is former editor of the Indian Defence Review. He writes on aerospace and strategic affairs. Views are personal.)

<https://www.moneycontrol.com/news/opinion/2022-is-a-promising-year-for-indias-defence-capabilities-7898061.html>

thejapantimes

Wed, 05 Jan 2022

North Korea fires apparent ballistic missile in first launch of 2022

By Jesse Johnson

Nuclear-armed North Korea tested an apparent ballistic missile on Wednesday for its first launch of the year into the Sea of Japan — just five days into 2022 — Japan and South Korea said.

The Japanese Defense Ministry and South Korean military said the test appeared to be of a single ballistic missile. The launch was North Korea's first since it fired off a new submarine-launched ballistic missile (SLBM) in October.

Prime Minister Fumio Kishida said that Tokyo was working to confirm whether the missile had landed in the country's exclusive economic zone, but NHK, citing an unidentified government official, reported that it had fallen outside the EEZ, which extends 200 nautical miles (370 km) from its coast, into the Sea of Japan.

"It's truly regrettable that North Korea has continued to launch missiles in succession since last year," Kishida said.

The South Korean Joint Chiefs of Staff said in a statement that the country was "conducting a detailed analysis" of the launch with its U.S. ally.

Some had expected Pyongyang to refrain from such shows of force ahead of the Beijing Winter Olympics due to start in February in a nod to China, its sole ally and economic lifeline.

But North Korean leader Kim Jong Un — who marked a decade in power in December — vowed at a key party meeting last week to continue building up his country's military capabilities.

"The military environment of the Korean peninsula and the trend of the international situation getting instable day after day demand that bolstering the state defence capability be further powerfully propelled without a moment's delay," Kim was quoted as saying by the official Korean Central News Agency.

The report said Kim had used the meeting to order the production of powerful, modern weapons systems to improve his capabilities and called for the military to remain "faithful and obedient" to the ruling party.

That meeting, however, focused on a vow by the North Korean supreme leader to end the country's chronic food shortages. The North is under tough U.N. sanctions over its nuclear and missile programs, but has also shuttered its borders due to the ongoing coronavirus pandemic.

In recent months, North Korea has tested a range of increasingly powerful new weapons systems in addition to its latest SLBM. These have included a long-range cruise missile believed to be capable of delivering a nuclear bomb to Japan, as well as a train-launched weapon and what the North said was a hypersonic gliding vehicle. All are believed to represent progress in Pyongyang's quest to defeat missile defenses.

The pace of North Korean weapons testing has triggered concern in Tokyo, with top officials — including Kishida — openly suggesting the possibility of Japan acquiring the capability to attack enemy bases.

"North Korea's remarkable nuclear and missile technology development is something we cannot overlook," Kishida said in October. "Amid this situation, I've already given instructions to revise our country's National Security Strategy, including considering the option of acquiring the so-called capability to strike enemy bases."

Kishida has also said he is open to an "unconditional" meeting with Kim, though denuclearization talks between the North and the United States have been stalled since 2019 after former U.S. President Donald Trump held three meetings with Kim.

Following the conclusion of a lengthy review of the United States' North Korea policy earlier this year, Trump's successor, President Joe Biden, has repeatedly said that his administration harbors no hostile intent toward Pyongyang and is prepared to meet unconditionally, with a goal of "the complete denuclearization of the Korean Peninsula."

Kim, however, has condemned the U.S. offer of dialogue as a "petty trick."

<https://www.japantimes.co.jp/news/2022/01/05/asia-pacific/north-korea-missile-launch/>



North Korean leader Kim Jong Un in Pyongyang in a photo released on Jan. 1 | KCNA / KNS / VIA AFP-JIJI



Wed, 05 Jan 2022

Landing Choices, Crew Escape System in Gaganyaan Module: Report

The Gaganyaan Orbital Module (OM) has two parts the Crew module (CM) and the Service module (SM) and weighs about 8,000 kg.

Thiruvananthapuram: As the Indian Space Research Organisation (ISRO) is going at full throttle for Gaganyaan, the country's maiden manned space mission scheduled for launch in 2023, interesting details of the Crew Module (CM), including the landing choices, Crew Escape system, and survival packets for each crew member, have emerged.

The CM would be splashing down near the Indian coast in 2023 after the week-long mission, and the Arabian Sea, which is comparatively calmer, is the primary choice, but Bay of Bengal is also being considered as a backup option, writes Dr Unnikrishnan Nair S, Director, Human Space Flight Centre (HSFC), ISRO, Bengaluru, in an article.

The article 'Indian Human Space Mission' appears in the Manorama Yearbook 2022.

The HSFC was set up by the ISRO in Bengaluru in 2019 for sustained and affordable human space flight activities and Gaganyaan is the first project. The test flight to validate the performance of Crew Escape System and the first uncrewed mission of Gaganyaan have been scheduled at the beginning of the second half of 2022.

The Gaganyaan Orbital Module (OM) has two parts — the Crew module (CM) and the Service module (SM) — and weighs about 8,000 kg.

While in orbit, the OM will be orbiting the Earth with a velocity of about 7,800 m/s.

The CM, a double walled system and the habitat of astronauts, who would be part of the manned mission, has an ablative Thermal Protection System (TPS) to protect it during the intense aerodynamic heating during the flight, points out Dr Nair.

The Orbital module will be launched by Human Rated Launch Vehicle (HRLV), which is a modified version of GSLV MK-III vehicle. The CM has a cluster of small thrusters with 100N thrust level based on green propulsion that will be fired in controlled manner to change the attitude of the module during the re-entry and atmospheric phases of flight.

After landing, the coordinates of CM will be passed on to the recovery team waiting in ships. The CM has survival packet for each crew that can support them for nearly two days. However, ISRO is positive that the crew can be recovered within two hours after the splash down.

For Gaganyaan, the selected four astronaut candidates have undergone generic space flight training at Russia for nearly 15 months.

The Gaganyaan-specific training will be carried out in India at the Astronaut Training Facility being set up at Bengaluru.

The crew will be familiarised with all conceivable situations that can happen while in flight and they will be trained to face such situations. The training will include classroom sessions on different engineering, medical and safety aspects of the mission.

The crew will undergo training in weightlessness condition by flying in special aircraft through a parabolic path that will give 25 to 30 seconds duration of weightlessness.

In order to familiarise the crew with rescue under abort conditions, they will undergo special survival training in sea, snow, mountain and desert conditions. They will be taught to survive in such situations making use of the survival kit available with them.

The crew will also undergo long duration training in special simulators that will mimic the interior of crew module.

<https://www.ndtv.com/india-news/gaganyaan-landing-choices-crew-escape-system-in-gaganyaan-module-report-2688140>



Wed, 05 Jan 2022

New epoch of miniaturized Cherenkov detectors

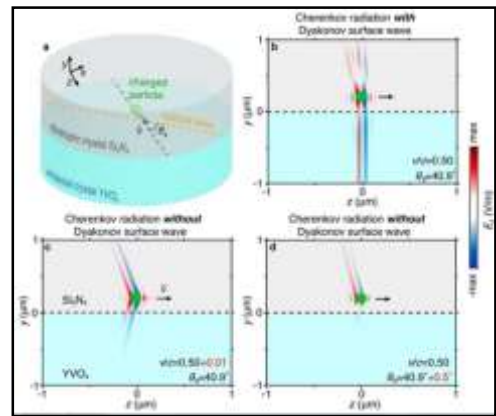
Recently, the research team led by Prof. Yu Luo from the school of Electrical and Electronic Engineering, Nanyang Technological University, discovered surface Dyakonov-Cherenkov radiation. This new type of Cherenkov radiation not only presages the next generation of miniaturized Cherenkov detectors, but also provides an indispensable route to detect particle trajectory. Moreover, this work offers a feasible route to excite Dyakonov surface waves, opening a new area of research in Dyakonov surface optics.

Cherenkov radiation refers to the photon emission from the swift charged particle moves with the velocity greater than the phase velocity of light in the surrounding materials. Ever since its experimental observation by a Soviet physicist P.A. Cherenkov in 1934, Cherenkov radiation has been widely explored and applied in many research fields ranging from cosmology and information, to medical and life sciences. Among all these applications, the detection of high-energy particles (i.e., identifying the type of detected particles from the direction of the photon emission) is the most important one. With the help of Cherenkov radiation, scientists discovered many elementary particles including anti-proton and J-particle. Owing to its impacts on both the fundamental research and practical applications, Cherenkov radiation and its related applications were awarded at least six Nobel Prizes in Physics (in 1958, 1959, 1988, 1995, 2002 and 2015, respectively).

Although Cherenkov detectors are widely used in the high-energy and particle physics, their bulky sizes hinder their applications to emerging research fields such as particle detection on chip. Thus, achieving miniaturized particle detectors could potentially broadens the applications of Cherenkov detection. Surface waves propagating at the interface of two different materials provide a possible solution towards this goal.

Generally speaking, there are two major branches of surface waves in nature: surface plasmons propagating along the metallodielectric interface; and Dyakonov surface waves propagating along the surface of a birefringent material.

Since the 1950s, surface plasmons have been widely applied to surface-enhanced Raman spectroscopy, surface-enhanced sensing, and surface-enhanced fluorescence, etc. Recently, surface plasmons were deployed to enhance Cherenkov radiation and achieve integrated Cherenkov light sources (*Nature Photonics*, (2017)). Nevertheless, the implementation of a miniaturized Cherenkov detector with surface plasmons is still challenging, mainly for two reasons: (1) The significant metallic dissipation hinders the detection of Cherenkov signals in the far field; (2) The strong chromatic dispersion of plasmons presents an inherent limit on the working bandwidth of the



Schematics of surface Dyakonov-Cherenkov radiation. b, Field pattern of Cherenkov radiation with Dyakonov surface waves. c-d, Field patterns of Cherenkov radiation without Dyakonov surface waves. Credit: Hao, Hu, Lin, Yu Luo

detector. On the contrary, Dyakonov surface waves can be excited in an all-dielectric platform with negligible dissipation loss and weak chromatic dispersion. Despite these advantages, applications of Dyakonov surface waves have been thus far quite limited due to the lack of an efficient excitation mechanism.

This research team led by Prof. Yu Luo from Nanyang Technological University has uncovered a new type of free-electron radiations, namely surface Dyakonov-Cherenkov radiation. It is achieved by exploring the interaction between the free charged particle and Dyakonov surface waves. Such a discovery not only facilitates the development of miniaturized Cherenkov detectors, but may also inspires future explorations of Dyakonov surface waves.

The research team investigated the emission behaviors of a swift charged particle moving atop the surface of a birefringent crystal. They found that when the particle velocity and trajectory fulfill a specific condition, the swift charged particle allows for efficient photon emission in terms of Dyakonov surface waves.

Surface Dyakonov-Cherenkov radiation is one of the best candidates for achieving miniaturized particle detectors on a chip. First, Dyakonov surface waves can significantly enhance the photon emission, offering a feasible route to reduce the interaction length of the swift charged particle and matter. Second, due to the negligible dissipation loss and weak chromatic dispersion of Dyakonov surface waves, the emitted photons can be readily collected in the far field.

Remarkably, the research team also found that the excitation of surface Dyakonov-Cherenkov radiation is highly sensitive to both the particle trajectory and velocity value. Only when the particle trajectory falls within the vicinity of a particular direction, the surface Dyakonov-Cherenkov radiation is allowed. Such a unique property results from the directional nature of Dyakonov surface waves. It allows the surface Dyakonov-Cherenkov radiation to detect the particle trajectory, with the accuracy up to 10 mrad.

The surface Dyakonov-Cherenkov radiation studied in this work also bridges the research gap between Cherenkov radiation and Dyakonov surface waves, and may produce far-reaching impacts on both areas. In the realm of Cherenkov radiation, this work not only facilitates the development of next-generation miniaturized Cherenkov detectors, but also offers a unique technique to track and collimate the particle beams, which is highly desired in nonlinear, ultrafast and quantum optics. In the realm of Dyakonov surface waves, the efficient excitation mechanism revealed in this work may open a new research area of Dyakonov surface optics.

More information: Hao Hu et al, Surface Dyakonov-Cherenkov radiation, *eLight* (2022). DOI: [10.1186/s43593-021-00009-5](https://doi.org/10.1186/s43593-021-00009-5). [elicht.springeropen.com/articl ... 6/s43593-021-00009-5](https://elicht.springeropen.com/article/10.1186/s43593-021-00009-5)

Mikhail Dyakonov, From Dyakonov-Cherenkov radiation to Dyakonov surface optics, *Light: Science & Applications* (2022). DOI: [10.1038/s41377-021-00692-6](https://doi.org/10.1038/s41377-021-00692-6)

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<https://phys.org/news/2022-01-epoch-miniaturized-cherenkov-detectors.html>

