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INDIA TODAY

Sun, 18 July 2021

Make-in-India technology to counter drone attack threat, says Amit Shah

India is developing an indigenous anti-drone 'Swadeshi' technology to counter the drone attack threat in the country, Union Home Minister Amit Shah said on Saturday

By Kamaljit Kaur Sandhu, Munish Chandra Pandey

The 'Make-in-India' technology will now counter the drone attack threat in the country, said Union Home Minister Amit Shah on Saturday while stating that India is developing indigenous anti-drone technology to secure the border areas and foil any terrorist attempts.

Union Minister Amit Shah was speaking at the 18th Investiture Ceremony of Border Security Force (BSF) at Vigyan Bhawan on Saturday. (File Photo)

“Drones have become a serious issue of security concern. Defence Research and Development Organisation (DRDO) is working on developing anti-drone 'Swadeshi' technology to get over this danger. All Research and Development projects have been sanctioned by the government to develop anti-drone technology,” Shah said while speaking at the 18th Investiture Ceremony of Border Security Force (BSF) at Vigyan Bhawan.

In recent times, the country has witnessed a series of attempts by Pakistan-based terror organisations in which drones were not only used to carry out terror activity but also to supply arms and ammunition, drugs and surveillance near bordering areas in Jammu & Kashmir and Punjab.

Last month, in a first of its kind attack, low-flying drones were used to airdrop improvised explosive devices (IEDs) inside a defence establishment in India. Two low-intensity blasts were triggered; the first ripped off the roof of a single-storey building while the second was on the ground in an open area.

Two Indian Air Force personnel had sustained minor injuries in the explosions that took place around 1.40 am within six minutes of each other.

'Ensure security using technology'

"Use of artificial intelligence to destabilise India could be the new weapon of terrorists," Shah said, adding that though peace is needed, security policy is clear to give an answer in the same language as the enemy understands.

"We will have to ensure security using technology and rely on upcoming technology. We are using newer methods," the union minister said.

The ability of drones to evade radar, wreak devastation on strategic installations and transport weapons to terrorists has been a continuous concern for the country's security establishment.

'BSF should focus on security, we'll take care of their families'

Shah further asked BSF personnel to focus on security and related solutions while the government would take care of their families.

"We will take care of your (BSF) families. Taking care of accommodation. Your health. All security measures have to be arranged by you. We have to be two steps ahead of infiltrators. We have to sit with technical experts and find a solution. Officers will have to get out of the routine and think of new techniques to be one step ahead of smugglers and law breakers," Shah said.

He stated that gaps in fencing on the International Border (IB) have been located and before 2022, these will be filled.

While paying his tributes to fallen soldiers, Shah said, "I salute those who have made supreme sacrifice. India is strengthening its position on the world map. These bravehearts and warriors cannot be forgotten. India has a place of pride on the world map due to BSF & our paramilitary forces who are protecting our borders."

He also said for the first time, responsibility has been fixed: Assam Rifles will be looking after the Myanmar border, BSF will look after Pakistan and Bangladesh and ITBP will look after Ladakh along the borders.

Meanwhile, BSF has contributed Rs 30 crore to the Prime Minister Care Fund. This is one of the last events of the outgoing BSF Chief Rakesh Asthana.

'Developing infrastructure in border areas top priority'

The Narendra Modi government has given priority to developing infrastructure in border areas, Union Home Minister Amit Shah said on Saturday.

"Between 2008 to 2014, 3,610 kilometres of road was constructed whereas between 2014 to 2020, 4,764 kilometres of road was constructed. The budget for road construction was also increased to Rs 44,000, which was Rs 23,000 crore in 2008-2014," he added.

The Union home minister added, "The gaps at the fenced borders will also be completed by year 2022 so that infiltration can stop at these bordering areas."

The central government has allocated Rs 888 crore over the last two years for development projects in bordering areas, said Amit Shah.

'No one can challenge us now'

"Before Narendra Modi took over as the Prime Minister of India, we did not have an independent defence policy. It was either affected by the country's foreign policy or overlapped with it. PM Modi formed a separate defence policy after taking office," Amit Shah said.

He added that no country can now dare to challenge India's sovereignty after Prime Minister Narendra Modi introduced an independent defence policy for the country.

"We do not want to disrupt the peace of any country, but if someone tries to challenge our borders and sovereignty, then as per our defence policy, a befitting response will be given to them in their own language. India was in need of a good defence policy which the Prime Minister has given," added Amit Shah.

https://www.indiatoday.in/india/story/make-in-india-technology-drone-home-minister-amit-shah-1829324-2021-07-17

THE NEW INDIAN EXPRESS

Sun, 18 July 2021

India will soon develop indigenous counter-drone technology: Home Minister Amit Shah

Before Modi became PM, India didn't have independent security policy, says Home minister

NEW DELHI: Nearly a fortnight after the drone attack on the air force base in Jammu, Union Home Minister Amit Shah on Saturday announced that India is developing an indigenous antidrone technology. The Defence Research and Development Organisation (DRDO) is working on it on a priority basis. Shah said India's security policy was "influenced or overlapping" with its foreign policy and it was only after Narendra Modi became Prime Minister that the country got an independent security strategy. DRDO and other agencies are involved in developing a 'made-in-India' anti-drone system, Shah said.

Union Home Minister Amit Shah. (File Photo | PTI)

The home minister said tech agencies were also working to develop AI ato make progress in the field of robotics, as part of a longdrawn project to bolster India's security grid. He made these comments while delivering the "Rustamji Memorial Lecture" attended by top officials of the Border Security Force (BSF). Shah's comments came just weeks after a twin drone attack on Indian Air Force's Jammu base, belived to be planned and executed by Lashkar-e-Toiba.

Two IAF personnel were injured in the attack. Several meetings have been held since, some of them chaired by the Prime Minister himself. Praising the Prime Minister for spearheading a makeover of India's security policy, Shah said India got an independent security strategy only after Modi rose to the Centre. "Modiji has done this big job of overhauling India's security policy. The policy was made operational on the ground by the Modi government," Shah said.

The home minister added that India wishes to have peaceful relationships with its neighbours. "But if someone disturbs our borders, if someone challenges our sovereignty, the priority of our security policy is that such an attempt will be replied in the same language." He said nearly three percent of the Indo-Pak border was yet to be fenced.

https://www.newindianexpress.com/thesundaystandard/2021/jul/17/india-will-soon-develop-indigenous-counter-drone-technologyhome-minister-amit-shah-2331554.html

Sun, 18 July 2021

Amit Shah says DRDO developing 'Anti-Drone Swadeshi Technology' Days after Jammu drone attack

Amit Shah also said that the use of artificial intelligence could be the new weapon in the hands of terrorists to destabilise India

A fortnight after the drone attack on Jammu airbase, Union Home Minister Amit Shah has said that developing an anti-drone swadeshi technology is a top priority for the government and DRDO is on the job. Speaking at the 17th Investiture ceremony of the Border Security Force (BSF), Shah said that technology-based solutions are the future of India's security strategy. "DRDO is working to develop anti-drone swadeshi technology to get over this danger. All Research and Development projects in this regard has been sanctioned by the government, "Home Minister said.

Speaking at the 17th Investiture ceremony of the Border Security Force, Home Minister Amit Shah said, "Seema suraksha hi rashtra suraksha hai."

He asked the officers present to think out of the box and collaborate with experts to find technical solutions to problems. "We will have to ensure security using technology…relying on upcoming technology should be the way forward. Officers will have to get out of routine and think of new techniques, to be one step ahead of smugglers, lawbreakers," Shah said.

He also highlighted the danger to national security from artificial intelligence. Home Minister said the use of artificial intelligence could be the new weapon in the hands of terrorists to destabilize India.

Anti-terror security grid officials have told News18 that there seems to be a trend to use artificial intelligence-based apps and data mining software to scout for Indian youngsters who are looking for literature around Al Qaeda, ISIS etc. "These youngsters are identified by AI mechanisms and then contacted by handlers. Some are then asked to join closed platforms on social media for radicalisation and eventual recruitment to terror groups," an officer told News18.

Suspicion is that a similar modus operandi was used to recruit the main accused in the Al Qaeda module case exposed by UP ATS.

Home Minister Amit Shah said that the security policy of the country will now have a special emphasis on technology. "We want peace but security policy is clear to give an answer in the same language as the enemy understands," he said. HM also said that gaps in fencing on the International Border have been located and before 2022 these will be filled. "This 3% gap in overall fencing was defeating the anti-infiltration measures…which we are now addressing," he said.

"Seema suraksha hi rashtra suraksha hai (protecting our borders is protecting the country)", the home minister told the officials.

https://www.news18.com/news/india/amit-shah-says-drdo-developing-anti-drone-swadeshi-technology-days-after-jammu-drone-attack-3973790.html

Sun, 18 July 2021

DRDO तैयार कर रही है स्वदेशी एंटी ड्रोन तकनीक, दुश्मनों को मिलेगा करारा जवाब- अमित शाह

अमित शाह ने कहा कि इस संबंध में सभी अनुसंधान और विकास परियोजनाओं को मंजूरी दे दी है

देश के गृहमंत्री अमित शाह (Amit Shah) ने कहा है कि एंटी ड्रोन स्वदेशी टेक्नोलॉजी तैयार करना सरकार और डिफेंस रिसर्च एंड डेवलपमेंट ऑर्गेनाइजेशन (DRDO) की बड़ी प्राथमिकता है। अमित शाह ने कहा कि प्रौद्योगिकी आधारित समाधान भारत की सुरक्षा रणनीति का भविष्य हैं। डीआरडीओ इस खतरे से निपटने के लिए एंटी ड्रोन स्वदेशी तकनीक विकसित करने पर काम कर रहा है। इस संबंध में सरकार ने सभी अनुसंधान और विकास प्रोजेक्ट्स को मंजूरी दे दी है।

जम्मू के एयरबेस पर हुए करीब दो हफ्ते पहले ड्रोन हमले के बाद गृहमंत्री का ये बयान काफी महत्वपूर्ण है। शाह ने ये बातें BSF के 18वें अलंकरण समारोह में कही। उन्होंने इस मौके पर BSF के अधिकारियों और कार्मिकों को पदक देकर सम्मानित किया।

न्यूज 18 में छपी खबर के मुताबिक समारोह में अमित शाह ने वहां मौजूद अधिकारियों को लीक से हटकर सोचने की अपील की। उन्होंने कहा कि समस्याओं के तकनीकी समाधान खोजने के लिए एक्सपर्ट्स के साथ सहयोग की आवश्यकता है।

गृहमंत्री ने कहा कि हमें टेक्नोलॉजी का उपयोग करके सुरक्षा सुनिश्चित करनी होगी। आधुनिक तकनीक पर भरोसा कर हमें आगे का रास्ता खोजना चाहिए। उन्होंने जोर देकर कहा कि अधिकारियों को लीक से हट कर सोचना होगा। नई तकनीकों के बारे में विचार करना होगा।

इस मौके पर गृहमंत्री ने कहा कि हम शांति चाहते हैं लेकिन सुरक्षा पॉलिसी स्पष्ट है कि जिस भाषा में दुश्मन समझते हैं उसी भाषा में जवाब दें। उन्होंने ने आर्टिफिशियल इंटेलिजेंस से राष्ट्रीय सुरक्षा को होने वाले खतरे पर भी बात की। उन्होंने कहा कि भारत को अस्थिर करने के लिए आर्टिफिशियल इंटेलिजेंस का उपयोग आतंकवादियों का नया औजार हो सकता है। अमित शाह ने कहा कि देश की सुरक्षा पॉलिसी में अब तकनीक पर विशेष फोकस रहेगा।

https://hindi.moneycontrol.com/news/country/drdo-is-preparing-indigenous-anti-drone-technology-enemies-will-get-the-answer--amit-shah_274227.html

mint

Mon, 19 July 2021

Our liberalized policy on drones will serve us well

The Centre has eased regulations in a way that will enable unmanned aircraft to proliferate and meet their promise. A deft balance of liberty and security would assure drones a future

Barely four months after India released rules for the use of unmanned aircraft systems, our civil aviation ministry has unveiled its draft Drone Rules, 2021, to replace them. That the Centre undertook this rehaul was an admission of how poorly the old regulatory regime was framed. But any course correction requires courage, and the government deserves credit for the move. Indeed, the earlier rules were an over- kill that would have stifled drone usage and deprived the country of their myriad benefits. Not only were too many okays needed to make, import and operate drones, fines so steep were envisioned that they would have deterred startups from entering this field. With its revisions, however, the ministry has eased their way in, enabling a services market to take off that had hovered around in anticipation more than action for a long while.

Our liberalized policy on drones will serve us well (Photo: HT)

Henceforth, pilot licences will not be a must for the operation of micro drones for non-commercial purposes, nano drones, and any kind deployed by research and development (R&D) organizations. Registered foreign-owned firms will face no special restriction on operating these. While their import will be regulated, no security clearance is needed for registration. The Centre has also dropped its insistence on certificates of drone airworthiness. Further, its digital sky platform will offer flight go-aheads digitally. These, among other moves to ease flying, reflect a recognition that drone operators need breathing space if these contraptions are to meet their promise. Drones can serve a wide range of uses across sectors, from farming and mining to e-commerce and vaccine drop-offs. It is far safer to have a drone monitor a hazardous site, for example, than expose humans to it. The experimental use of these hi-tech courier birds has been widely welcomed, especially for ferrying vital supplies to places that are hard to access. Their utility for state initiatives is also very high, be it in cartographic exercises or for farm surveys and police surveillance. It would serve our economy best, however, if they're deployed mostly by private players as enhancers of efficiency, rather than by the state as its eyes, ears and arms. For that, our rules need to be as market-friendly as possible within the constraints of public security.

The threat that could be posed by drones buzzing around Indian airspace is significant. A vehicle that can air-lift a pizza to a family picnic can also bear lethal payloads. The recent drone attack on an air-force installation in Jammu brought this problem into sharp focus. The coordination mechanism of our digital sky platform is yet to be tested against heavy traffic. Once drones are common in our skies, the prevention of rogue flights would need a foolproof vigil. Spotting a suspicious flying object is one thing, though, and acting against it is another. On Saturday, home minister Amit Shah said that our Defence Research and Development Organization was among the agencies working on drone defence systems, to be deployed "very soon". It is perhaps a sign of technical confidence that our colour-coded map of flight zones has also been liberalized. While highly sensitive areas must stay barred to drones, we should not complicate matters for operators beyond what's necessary. Yet, we should be ready to recalibrate our policy in response to new learnings and advancements. As it's a new business, some turbulence is to be expected. But that must not weaken our resolve to see it thrive.

https://www.livemint.com/opinion/online-views/our-liberalized-policy-on-drones-will-serve-us-well-11626621453520.html

Sat, 17 July 2021

Defence body DRDO launches biodegradable packaging products

"The bags which come in two forms, soluble and insoluble, can be biologically degraded in 3 months and cause no harm to the environment whatsoever, " DRDO and Ecolastic Private Limited said

Hyderabad (Telangana): With the aim of reducing single-use plastic, Defence Research and Development Organisation (DRDO), in collaboration with Acharya Nagarjuna University and Ecolastic Private Limited, launched environmentally safe packaging products made from natural and plant-based food-grade materials.

"The bags which come in two forms, soluble and insoluble, can be biologically degraded in 3 months and cause no harm to the environment whatsoever. Unlike the conventional polyethylene bags made from petrochemicals, which are highly unsafe to the environment and takes years to degrade, these bags are the most sustainable, cost-effective, and ocean-safe alternative to single-use plastics," DRDO and Ecolastic Private Limited said.

Speaking to ANI, the Director of Advanced Systems Laboratory (ASL), DRDO, Ram Manohar Babu said that he feels immensely proud at launching the Ecolastic packaging product.

"Government of India has decided to completely eliminate the usage of single-use plastic in the country by 2022 and these biodegradable packing bags help us make a forward step in that direction," he said.

He added that eco-friendly products like these are essential for the survival of mankind and DRDO has played a vital role in bringing it out.

Further, he mentioned that Tirumala Tirupati Devasthanam has approved the distribution of these products, and stated that they have to campaign for further distribution of such products.

Addressing the media, Chief Scientist Dr Veera Bhrammam said that they have launched this product after reaching the perfect formulation through rigorous testing.

"We have taken care of strength and biodegradability factors and have achieved the most sustainable alternative to plastic. Not a single animal will be harmed with this product," he said.

Technical Director, Ecolastic Private Limited, Purushottam while speaking to ANI said, "We can't remove plastic completely from our life but we can find alternative solutions. The packaging bags launched today are the most sustainable alternative to single-use plastic."

He added that they are ready to provide material to industries that will come forward to produce the product and would further help circulate the eco-friendly product.

(Except for the headline, this story has not been edited by NDTV staff and is published from a syndicated feed.)

https://www.ndtv.com/india-news/drdo-launches-biodegradable-packaging-products-2488284

Sat, 17 July 2021

DRDO launches 'Biodegradable' packaging products to get rid of single-use plastic

Chief Scientist Dr Veera Bhrammam highlighted the fact that the product underwent rigorous testing in terms of strength and biodegradability. She claimed that not a single animal would be harmed with their innovation

By Sanal M Sudevan, Edited By Palak Agrawal

In an attempt to curb the rising menace of single-use plastic, the Defence Research and Development Organisation (DRDO) joined hands with Acharya Nagarjuna University and Ecolastic Private Limited to launch biodegradable packaging products, which is made from natural and plant-based food-grade materials.

credit: ANI

These sustainable bags would be made available in two forms —soluble and insoluble. These bags would be biologically degraded in about three months without negatively impacting the environment.

According to DRDO and Ecolastic Private Limited, conventional polyethylene bags made from petrochemicals are toxic to the environment and takes years to degrade. In contrast, these bags would be offered as a 'sustainable, cost-effective and ocean-safe alternative' to such plastic products.

Essential for Mankind

Ram Manohar Babu, Director of Advanced Systems Laboratory (ASL), DRDO, told ANI, "I feel immensely proud at launching the Ecolastic packaging product. The government has decided to completely eliminate the usage of single-use plastic in the country by 2022 and these biodegradable packing bags help us make a forward step in that direction."

Stating that the DRDO played a vital role in bringing it out such products, he said that eco-friendly products are the need of the hour and essential for the survival of mankind.

Rigorous Testing

Chief Scientist Dr Veera Bhrammam highlighted the fact that the product underwent rigorous testing in terms of strength and biodegradability. She claimed that not a single animal would be harmed with their innovation.

Purushottam, Technical Director, Ecolastic Private Limited, told ANI, "We can't remove plastic completely from our life but we can find alternative solutions. The packaging bags launched today are the most sustainable alternative to single-use plastic."

https://thelogicalindian.com/trending/defence-research-and-development-organisation-launches-biodegradable-packaging-products-29689

Sat, 17 July 2021

DRDO ने लॉन्च किया बायोडिग्रेडेबल पैकेजिंग बैग, कहा- एक बार ही इस्तेमाल होने वाले प्लास्टिक का टिकाऊ विकल्प

इकोलास्टिक प्राइवेट लिमिटेड के तकनीकी निदेशक पुरुषोत्तम ने कहा कि हम अपने जीवन से प्लास्टिक को पूरी तरह नहीं हटा सकते हैं लेकिन हम वैकल्पिक समाधान जरूर बना सकते हैं।

Edited By साकेत आनंद

रक्षा अनुसंधान और विकास संस्थान (DRDO) ने सिंगल यूज प्लास्टिक के इस्तेमाल को कम करने के उद्देश्य से शुक्रवार को बायोडिग्रेडेबल पैकेजिंग प्रोडक्ट्स लॉन्च किया है। डीआरडीओ ने प्राकृतिक और पौधों पर आधारित फूड ग्रेड सामग्रियों से पर्यावरण अनुकूल ये पैकेजिंग बैग बनाए हैं। डीआरडीओ ने इन बैग को आचार्य नागार्जुन यूनिवर्सिटी और इकोलास्टिक प्राइवेट लिमिटेड के साथ साझेदारी कर विकसित किया है।

डीआरडीओ और इकोलास्टिक प्राइवेट लिमिटेड ने एक बयान में कहा, "बैग दो रूप में उपलब्ध हैं, घुलनशील और अघुलनशील। ये तीन महीनों में प्राकृतिक रूप से गल सकते हैं और इससे पर्यावरण को किसी तरह का नुकसान नहीं होगा। पेट्रोकेमिकल्स से बने प्लास्टिक बैग के गलने में सालों लगते हैं और ये पर्यावरण के लिए भी काफी हानिकारक हैं। इसकी तुलना में ये बैग अधिक टिकाऊ, किफायती हैं और सिंगल यूज प्लास्टिक के बेहतरीन विकल्प हैं।"

समाचार एजेंसी एएनआई से बातचीत करनते हुए डीआरडीओ के एडवांस सिस्टम लैबोरेटरी (ASL) के निदेशक राम मनोहर बाबू ने कहा कि वे इकोलास्टिंग पैकेजिंग प्रोडक्ट्स को लॉन्च करके काफी गर्व महसूस कर रह हैं। उन्होंने कहा, "भारत सरकार ने 2022 तक देश में सिंगल यूज प्लास्टिक के इस्तेमाल को पूरी तरह से खत्म करने का फैसला लिया है और ये बायोडिग्रेडेबल पैकिंग बैग उसी दिशा में हमारी मदद करेंगे।"

उन्होंने कहा कि इस तरह के पर्यावरण अनुकूल प्रोडक्ट्स इंसानों के लिए जरूरी हैं और डीआरडीओ ने इसे बनाने में एक महत्वपूर्ण भूमिका निभाई है। उन्होंने आगे कहा कि तिरुमाला तिरुपति देवस्थानम ने इन बैगों के वितरण को मंजूरी दी है और कहा है वे ऐसे प्रोडक्ट्स के वितरण के लिए प्रचार करेंगे।

काफी टेस्ट करने के बाद लॉन्च हुआ बैग

मीडिया को संबोधित करते हुए मुख्य वैज्ञानिक डॉ वीरा ब्रमम ने कहा कि काफी टेस्टिंग और एक सही फॉर्मूले पर पहुंचने के बाद इस प्रोडक्ट को लॉन्च किया गया है। उन्होंने कहा, "हमने इसकी क्षमता और प्राकृतिक रूप से गलने जैसे फैक्टर का ध्यान रखा है। इसके बाद ही प्लास्टिक के विकल्प के रूप सबसे टिकाऊ प्रोडक्ट बना है। इस बैग से एक भी जानवर का नुकसान नहीं होगा।"

वहीं इकोलास्टिक प्राइवेट लिमिटेड के तकनीकी निदेशक पुरुषोत्तम ने एएनआई को बताया, "हम अपने जीवन से प्लास्टिक को पूरी तरह नहीं हटा सकते हैं लेकिन हम वैकल्पिक समाधान जरूर बना सकते हैं। आज लॉन्च किया गया पैकिंग बैग सिंगल यूज प्लास्टिक का सबसे बेहतरीन और टिकाऊ विकल्प है।" उन्होंने कहा कि वे इंडस्ट्री को सामग्री उपलब्ध कराने को तैयार हैं।

https://www.tv9hindi.com/india/drdo-launches-biodegradable-packaging-bags-alternative-to-single-use-plastic-738819.html

THE TIMES OF INDIA

Sat, 17 July 2021

DIAT to conduct joint research on defence tech with UK varsities soon

By Sandip Dighe

Pune: The Defence Institute of Advanced Technology (DIAT) will soon carry out joint research projects on defence technology with scientists in the United Kingdom (UK).

The DIAT, the only deemed university of the Defence Research and Development Organisation (DRDO), conducted an online workshop with a team of 20 experts from six universities in the UK on Thursday to discuss future projects. Experts from Cranfield, Birmingham and West England universities participated in the discussion.

DIAT held an online workshop with an expert team on Thursday

They identified research areas during the meeting and decided to frame a roadmap. Collaborative research could be conducted on niche topics such as advanced materials and manufacturing, artificial intelligence, machine learning, radar and communication and quantum computing, nano technology and sensors.

"The research on these topics is necessary to develop future defence technologies to counter contemporary challenges of the armed forces," said SK Panigrahi, dean (sponsored research) and professor in mechanical department of DIAT.

CP Ramanarayanan, vice-chancellor, DIAT, said, "We will be exploring possibilities of engagement in terms of carrying out research and development project proposal by seeking funding from various government agencies of India and the UK. Students and faculty exchange programme may take place in future."

https://timesofindia.indiatimes.com/city/pune/diat-to-conduct-joint-research-on-defence-tech-with-uk-varsities-soon/articleshow/84487365.cms

THE HINDU BusinessLine

Sat, 17 July 2021

BDL looks at next phase of growth, new areas

The company is in the process of diversifying into Mines, Anti- Submarine Warfare Suite and Anti-Drone System

By V Rishi Kumar

Hyderabad: Defence public sector undertaking Bharat Dynamics Limited is upbeat on emerging opportunities in the defence sector.

While expanding its product portfolios, BDL, which celebrated its 52nd Formation Day on Friday, is in the process of diversifying into new areas of Mines, Anti-Submarine Warfare Suite and Anti-Drone System.

Greeting employees, Commodore Siddharth Mishra (Retd), CMD, BDL, said BDL has a very good order book from the Armed Forces and is endeavouring to expand its footprint in the global market by offering its products to friendlycountries.

Over the last five decades, BDL has evolved to be among the few companies in the world with it's facilities for manufacture and supply of Guided Missiles, Underwater Weapons, Air-borne products and allied defence equipment for Indian Armed Forces.

BDL, which has strengthened its R&D capabilities over the years, is actively involved with DRDO as a 'Development Partner' for various missiles and underwater weapons programme. BDL has been nominated as the Prime Production Agency by DRDO under the Integrated Guided Missile Development Programme for Prithvi, Akash and Nag. Alongside, in the underwater weapons category, the Light Weight Torpedo and Heavy Weight Torpedo (Varunastra) are being manufactured under technical collaboration with NSTL.

The company is setting up new infrastructure for Surface-Mount Technology, High Performance Computing facility, Seeker Facility Centre, Warhead Production facility, High Temperature Carbon Composite and Environmental Testing Facility.

Among the new projects, BDL is involved as a Development-cum-Production partner for Smart Anti-Airfield Weapon System and Vertically Launched Short Range Surface to Air Missiles, with large business opportunities.

Over the last five years, while BDL has grown to become a major Defence PSU supporting the Indian Armed Forces, it has rededicated itself towards Atmanirbhar mission in the Defence sector.

https://www.thehindubusinessline.com/companies/bdl-looks-at-next-phase-of-growth-new-areas/article35378848.ece

moneycontrol

Sat, 17 July 2021

Explained: What are composite materials, why do they matter in defence sector and how's India doing?

From powering light combat aircraft Tejas to a range of weapons, indigenous composite materials will play a pivotal role in India's missile technology

By Vanita Srivastava

Extensively used in almost all spheres of engineering, on land, air or water, composite materials have been generating a lot of interest and finding widespread use, especially in the defence sector.

A combination of two or more materials with different properties that perform specialised jobs, composites are high-performance materials used in almost all industries. The defence sector is one of the major users of composite materials, particularly for rockets, missiles and other equipment.

Indigenously developed composite materials have been used in Tejas.

Composite and laminates are used in making missile parts as they are often lighter, stronger, and more durable than metals or other materials. Here is low down on composite materials and their use in the defence sector:

What are composite materials?

A composite is a structural material that consists of two or more constituents that are intimately bonded together to form an integrated structure. The load-bearing constituent is called "reinforcement" and the one in which it is embedded is called the "matrix". For a structural composite, the "reinforcement" is usually glass or carbon fibre and the "matrix" is a thermoset polymer such as epoxy.

Unlike metals, composites do not corrode and have a high strength-to-weight ratio and high stiffness-to-weight ratio. Hence, they are used for applications in virtually all sectors of engineering—land-based, marine, or aerospace.

How are composite materials better than conventional materials in rocket technology?

Composites are better because of their high specific strength and high specific modulus. They do not corrode like metals, nor do they undergo catastrophic failure. Composites offer a wide range of properties by having a combination of different reinforcing and matrix materials.

Multiple functionalities such as stealth, health monitoring, etc can be incorporated in situ, which is usually not possible with metals.

Moreover, composites are high-performance materials that are lighter but stronger and stiffer than their corresponding conventional materials. As a result, specific advantages like longer range, larger payload, reduced cycle time, reduced cost and such other characteristics can be achieved.

Do composites have a bearing on India's efforts to step up the indigenisation of its weapons programme?

Indigenous development of weapons is associated with high performance. Hence, composites are essential in certain areas. Composites are currently in use in many Indian weapons programmes. The airframe of LCA (light combat aircraft), superstructures of naval vessels, components for various strategic and non-strategic missile systems are a few examples.

Multi-functional composites for armour application, aerospace composites with functional features such as radar transparency, stealth, etc are being developed fully indigenously. Similarly,

several niche products have been indigenously developed. One example would be the first indigenous composites sonar dome developed by Pane-based R&DE (E).

What is the history of composite making in DRDO? What were the main challenges?

DRDO laboratories based in Pune, Hyderabad and Bengaluru have been developing composite structures for all three services for more than two decades. The aerospace-related product development by ISRO, CSIR and DRDO labs took the lead in establishing manufacturing processes and industries for product development.

R&DE (E), Pane has done pioneering work in establishing processes for product development related to naval and land applications. Examples of this effort are carbon fibre reinforced bridges of different spans for the Army that are 40 percent lighter in comparison to their metallic counterparts. Glass fibre-reinforced armoured vehicle hulls with integral ceramics armour have also been developed. The main challenge is the paucity of industry support for manufacturing high-end military-grade composites products.

(The information has been provided by the officials of the Defence Research Development Organisation)

https://www.moneycontrol.com/news/business/explained-what-are-composite-materials-why-do-they-matter-in-defence-sector-and-hows-india-doing-7178411.html

COVID 19: DRDO's Contribution

जागरण

Sat, 17 July 2021

मेडिकल कालेज पहुंचा डीआरडीओ का प्लांट

बदायूं एडी हेल्थ एसपी अग्रवाल शुक्रवार को जिले के स्वास्थ्य केंद्रों के दौरे पर रहे हैं। रूदायन सीएचसी के निरीक्षण के दौरान उनकी मौजदूगी में वहां स्थापित किए गए आक्सीजन प्लांट को चालू करवाया गया है।

बदायूं: एडी हेल्थ एसपी अग्रवाल शुक्रवार को जिले के स्वास्थ्य केंद्रों के दौरे पर रहे है। रूदायन सीएचसी के निरीक्षण के दौरान उनकी मौजदूगी में वहां स्थापित किए गए आक्सीजन प्लांट को चालू करवाया गया है। इधर, एडी हेल्थ डा.एसपी अग्रवाल ने घटपुरी और आसफपुर सीएचसी का भी निरीक्षण किया गया है। वहीं, बेंगलुरु से डीआरडीओ का आक्सीजन प्लांट मेडिकल कालेज पहुंच गया है।

एडी हेल्थ, सीएमओ डा.विक्रम सिंह पुंडीर के साथ सबसे पहले घटपुरी सीएचसी पर पहुंचे। यहां उन्होंने आक्सीजन प्लांट का निरीक्षण किया। इसके साथ ही दवाओं का स्टाक एवं साफ सफाई का जायजा लिया। उन्होंने सीएचसी पर स्टाफ की कमी को पूरा करने के लिए सीएमओ को निर्देश दिए। वहीं, निरीक्षण के दौरान गैरहाजिर मिले फार्मासिस्ट शेखर वर्मा को फटकार लगाई। इसके बाद एडी ने आसफपुर सीएचसी का निरीक्षण यहां। यहां भी खामियां मिलने पर उनको दुरूस्त करने के निर्देश। जिसके बाद रूदायन पहुंचकर आक्सीजन प्लांट का शुरू करवाया। प्लांट के शुरू होने से सीएचसी समेत अन्य स्वास्थ्य केंद्रों पर आक्सीजन की किल्लत खत्म होने की बात कहीं। उन्होंने कहा सभी प्लांट चालू होने के बाद जिले की स्वास्थ्य सेवाएं और बेहतर हो सकेगी।

मेडिकल पहुंचा डीआरडीओ का प्लांट

लंबे इंतजार के बाद डीआरडीओ का आक्सीजन प्लांट शुक्रवार को मेडिकल कालेज परिसर में पहुंच गया है। यह प्लांट डीआरडीओ द्वारा स्थापित किया जा रहा है। प्लांट को बेंगलुरू की कंपनी से खरीदा गया था। उम्मीद जताई जा रही है, 20 जुलाई तक प्लांट प्लेटफार्म पर शिफ्ट होने के बाद चालू हो जाएगा। इस संबंध में प्राचार्य डा. धर्मेद्र गुप्ता ने बताया, प्लांट बेंगलुरु से यहां पहुंच गया है। डीआरडीओ के अफसर आकर इस प्लांट को शिफ्ट करेंगे। जिसके बाद ही इससे आक्सीजन की सप्लाई शुरू कराई जाएगी।

https://www.jagran.com/uttar-pradesh/badaun-drdo-plant-reached-medical-ncolleg-21837973.html

जागरण

Sat, 17 July 2021

सदर व एसएनएमएमसीएच में पीएसए आक्सीजन प्लांट का ट्रायल पूरा

धनबाद जिले के दो बड़े अस्पताल एसएनएमएमसीएच और सदर अस्पताल में इस माह के अंत तक आक्सीजन प्लांट काम करना शुरू कर देगा। दोनों जगहों पर लगने वाले पीएसए आक्सीजन प्लांट का ट्रायल पूरा हो गया है। अब मैनिफोर्ड व प्वाइंट से प्लांट का कनेक्शन जोड़ा जा रहा है।

धनबाद: जिले के दो बड़े अस्पताल एसएनएमएमसीएच और सदर अस्पताल में इस माह के अंत तक आक्सीजन प्लांट काम करना शुरू कर देगा। दोनों जगहों पर लगने वाले पीएसए आक्सीजन प्लांट का ट्रायल पूरा हो गया है। अब मैनिफोर्ड व प्वाइंट से प्लांट का कनेक्शन जोड़ा जा रहा है। इधर, झारखंड राष्ट्रीय स्वास्थ्य मिशन के निदेशक उमाशंकर सिंह ने भी 30 जुलाई तक धनबाद सहित राज्य भर के पीएसए प्लांट को शुरू करने का निर्देश दिया है।

एसएनएमएमसीएच में 341 बेड हो जाएंगे आक्सीजन युक्त बेड

एसएनएमएमसीएच में पीएसए प्लांट के अलावा, प्रधानमंत्री केयर फंड के तहत रक्षा अनुसंधान और विकास संगठन (डीआरडीओ) की ओर से से भी आक्सीजन प्लांट लगाया जा रहा है। इस प्लांट के जरिए प्रति मिनट एक हजार लीटर आक्सीजन की आपूर्ति होगी। अस्पताल के अधीक्षक डा एके चौधरी ने बताया कि प्रबंधन की कोशिश है कि इस माह के अंत तक बचे काम को पूरा कर लिया जाए। इस तरह यहां 570 में से 341 बेड आक्सीजन युक्त बेड हो जाएंगे। इसके साथ ही जंबो आक्सीजन सिलेंडर को भी आपातस्थिति के लिए स्टाक में रखा जाएगा। किसी कारणवश प्लांट कुछ घंटे काम करना बंद भी करता है, तो सिलेंडर से आक्सीजन की आपूर्ति की जाएगी।

सदर अस्पताल में होंगे सौ आक्सीजन बेड

पीएसए प्लांट के निर्माण के साथ ही कोर्ट मोड स्थित सदर अस्पताल में भी सौ आक्सीजन बेड तैयार हो गए हैं। यहां भी प्लांट का मैनिफोर्ड से कनेक्शन किया जा रहा है। अस्पताल के प्रभारी डा राजकुमार सिंह ने बताया कि प्रबंधन की कोशिश है इस माह के अंत तक आक्सीजन बनना शुरू हो जाए। यहां पर हर्ल कंपनी सीएसआर फंड से पीएसए आक्सीजन प्लांट का निर्माण करा रही है।

https://www.jagran.com/jharkhand/dhanbad-trial-of-psa-oxygen-plant-completed-in-sadar-and-snmmch-21843953.html

जागरण

Mon, 19 July 2021

Muzaffarpur: एसकेएमसीएच में 15 अगस्त तक चार प्लांट से ऑक्सीजन उत्पादन, जानिए स्वास्थ्य विभाग की तैयारी

आक्सीजन प्लांट निर्माण को गति देने के लिए खुला बीएमएसआइसीएल का कार्यालय एसकेएमसीएच में चार आक्सीजन प्लांट की नींव डाली गई है। 15 अगस्त तक निर्माण कार्य पूरा कर लिया जाएगा। सदर अस्पताल के साथ पारू कांटी और सकरा पीएचसी में भी लग रहा आक्सीजन प्लांट

By अमरेंद्र तिवारी

मुजफ्फरपुर: कोरोना की तीसरी लहर की आशंका को देखते हुए स्वास्थ्य विभाग आक्सीजन उत्पादन को लेकर सजग है। उत्तर बिहार के सबसे बड़े एसकेएमसीएच सहित पीएचसी स्तर पर भी आक्सीजन प्लांट लगाने पर काम चल रहा है। एसकेएमसीएच में चार आक्सीजन प्लांट की नींव डाली गई है। 15 अगस्त तक निर्माण कार्य पूरा कर लिया जाएगा। प्लांट निर्माण कार्य को गति देने के लिए परिसर में बिहार मेडिकल सर्विसेस एंड इंफ्रास्ट्रक्चर कॉर्पोरेशन लिमिटेड (बीएमएसआइसीएल) का कार्यालय खुल गया है। बीएमएसआइसीएल के अधिकारी व कर्मी दिनरात निर्माण काम में लगे हुए हैं। इसके साथ एसकेएमसीएच में भवन, नाला एवं अन्य निर्माण की जवाबदेही भी बीएमएसआइसीएल पर है।

एसकेएमसीएच में इस तरह फैल रहा ऑक्सीजन प्लांट का जाल

एसकेएमसीएच परिसर में सेना की ओर से संचालित डीआरडीओ के कोविड केयर सेंटर में रखे गए क्रायोजनिक आक्सीजन टैंक लग रहा है। इसकी क्षमता 20 टन है। यह प्लांट तैयार हो चुका है और पाइप लाइन अस्पताल तक पहुंच गया है। लाइसेंस लेने की प्रक्रिया चल रही है। इसे 31 जुलाई तक चालू करने का लक्ष्य रखा गया है। इसके साथ पेट्रोलियम मंत्रालय के सहयोग से 100 ड्क्षसलेंडर क्षमता वाला प्लांट लग रहा है। इसके लिए जमीन चयन व निर्माण काम प्रारंभ है। इसके साथ ट्रामा सेंटर के ऊपर 30 बेड का अस्थायी वार्ड बन रहा है। इसमें न्यूरो सर्जरी व केमोथेरेपी से जुड़े मरीजों को भर्ती करने की सुविधा रहेगी। यहां पर भी आटोमेटिक आक्सीजन उत्पादन मशीन लगाने की योजना है। इससे प्रतिदिन 10 सिलेंडर आक्सीजन का उत्पादन होगा। इससे इस वार्ड में भी आक्सीजन को लेकर होने वाली परेशानी दूर होगी। इसके अलावा 150 आक्सीजन कंसेंटेटर की आपूर्ति हुई है। ये मरीज के पास लगाए जाएंगे।

यह हवा से पांच लीटर प्रति मिनट के हिसाब से आक्सीजन तैयार कर लेगा। एसकेएमसीएच के अधीक्षक डा.बीएस झा ने बताया कि इस बार ऑक्सीजन को लेकर परेशानी रही। आने वाले दिनों में नहीं होगी। कोरोना या दूसरे मरीजों के इलाज में इसका लाभ मिलेगा। अधीक्षक ने कहा कि 15 अगस्त तक सभी आक्सीजन प्लांट काम करने लगेंगे। यह लक्ष्य लेकर तैयारी चल रही है।

सदर से लेकर पीएचसी तक लग रहा प्लांट

सिविल सर्जन डा.विनय कुमार शर्मा ने बताया कि सदर अस्पताल की तरह यूनिसेफ की ओर से पारू, कांटी और सकरा पीएचसी में आक्सीजन प्लांट लगाए जाएंगे। इसमें प्राकृतिक हवा से खुद आक्सीजन बनेगी और पाइपलाइन से वार्ड में आपूर्ति की जाएगी।

- एसकेएमसीएच में चार स्तर पर आक्सीजन प्लांट लगाने का काम चल रहा है। अभी बाहर की एजेंसी से 250 से 300 सिलेंडर लाकर इलाज हो रहा। कोरोना संक्रमण के समय 500 सिलेंडर तक जरूरत थी, लेकिन अब बाहर से आक्सीजन की जरूरत नहीं होगी। - डा.बीएस झा, अधीक्षक, एसकेएमसीएच

https://www.jagran.com/bihar/muzaffarpur-oxygen-production-from-four-plants-in-muzaffarpur-skmch-till-august15-21842955.html

अमर उजाला

Mon, 19 July 2021

राहत: अब नहीं होगी जिले में ऑक्सीजन की किल्लत

जिला अस्पताल में बनने वाले ऑक्सीजन प्लांट के लिए आवश्यक उपकरण पहुंच गए हैं। आगामी दो दिनों में यह ऑक्सीजन प्लांट इंस्टाल हो जाएगा।

विदित रहे कि कोरोना की दूसरी लहर में ऑक्सीजन की भारी कमी हो गई थी। उस समय कैथल में एनएचएआई की मदद से ऑक्सीजन प्लांट बनाए जाने का एलान हुआ था। उस समय पंद्रह दिन में प्लांट शुरू किए जाने की बात कही गई थी, लेकिन जिला अस्पताल में आवश्यक जमीनी कार्य पूरा होने के बाद भी यह प्लांट नहीं बन रहा था। अब इसके लिए आवश्यक उपकरण पहुंच गए हैं।

रविवार को अस्पताल में बनने वाले प्लांट में पीएसए (प्रेशर स्विंग ऐड्सॉप्शन) पहुंच गया है, जिसकी क्षमता 1 हजार लीटर प्रति मिनट ऑक्सीजन की उपलब्धता है। इसे अगले 2 दिनों में इंस्टाल कर दिया जाएगा।

इस संबंध में डीसी प्रदीप दहिया ने बताया कि प्लांट में प्रेशर स्विंग एड्सॉप्शन (पीएसए) टेक्नोलाजी का इस्तेमाल किया जाता है। यह इस सिद्धांत पर काम करता है कि उच्च दबाव में गैस सॉलिड सरफेस की तरफ आकर्षित हो। पीएसए (प्रेशर स्विंग ऐड्सॉप्शन) प्लांट में हवा से ही ऑक्सीजन बनाने की अनूठी तकनीक होती है। इसमें एक चैंबर में कुछ सोखने वाले रासायनिक तत्व डालकर उसमें हवा को गुजारा जाता है। इसके बाद हवा का नाइट्रोजन सोखने वाले तत्वों से चिपककर अलग हो जाता है और ऑक्सीजन बाहर निकल जाती है। इस तरह ऑक्सीजन की अस्पतालों को आपूर्ति की जाती है। इसके लिए दबाव काफी उच्च रखना होता है।

इसके अलावा जिले में 4 अन्य जगह कलायत, कौल सीएचसी, गुहला-चीका व पूंडरी में भी ऑक्सीजन प्लांट लगाए जाने हैं, जिस पर कार्य चल रहा है। कलायत में पीएसए प्लांट का कार्य जारी है। गुहला व कौल में डीआरडीओ की तरफ से प्लांट बनाए जाने हैं, जबकि सीएचसी पूंडरी में भी प्लांट लगाया जाना है।

https://www.amarujala.com/haryana/kaithal/relief-now-there-will-be-no-shortage-of-oxygen-in-the-district-kaithal-news-knl76961067

अमर उजाला

Sun, 18 July 2021

डीसी ने ऑक्सीजन प्लांट ऊना के निर्माण कार्य का किया निरीक्षण

ऊना: उपायुक्त राघव शर्मा ने क्षेत्रीय अस्पताल ऊना में ऑक्सीजन प्लांट के निर्माण कार्य का जायजा लिया। उन्होंने अधिकारियों को निर्माण कार्य में तेजी लाने के निर्देश दिए।

उन्होंने कहा कि केंद्र सरकार ने पीएम केयर्स फंड के तहत जिला ऊना को 1000 एलपीएम क्षमता का प्लांट स्वीकृत किया है। इससे अस्पताल में 144 बेड को हाई फ्लो ऑक्सीजन की सुविधा उपलब्ध होगी। डीआरडीओ के माध्यम से यह प्लांट स्थापित किया जा रहा है। इसके लिए राज्य सरकार भी मदद दे रही है। राघव शर्मा ने कहा कि स्वास्थ्य विभाग जल्द से जल्द प्लांट को मंगवाने के लिए डीआरडीओ के साथ संवाद करे। इसके साथ ही अस्पताल में सभी बेड को ऑक्सीजन पाइप लाइन से जोड़ें। उन्होंने 24 जुलाई तक ऑक्सीजन पाइपलाइन तथा ऑक्सीजन प्वाइंट तैयार करने के निर्देश दिए।

उन्होंने कहा कि इसके लिए विभागीय अधिकारी कार्य योजना तैयार कर लें। डीसी ने कहा कि प्लांट के लिए अलग बिजली का ट्रांसफार्मर लगना है, जिसे एक हफ्ते में लगाया जाए। इस दौरान सीएमओ डॉ. रमन कुमार शर्मा ने कहा कि ऑक्सीजन प्लांट के साथ डिजीसेट भी लगाया जाना प्रस्तावित है। इसके लिए टेंडर कर दिया है। एक माह के भीतर डिजीसेट भी लग जाएगा।

उपायुक्त राघव शर्मा ने जिले में अन्य स्थानों पर लगाए जा रहे ऑक्सीजन प्लांट की प्रगति पर भी स्वास्थ्य विभाग के अधिकारियों के साथ चर्चा की और उनसे लंबित एस्टीमेट जल्द से जल्द भेजने को कहा। इस दौरान सीएमओ डॉ. रमन कुमार शर्मा सहित अन्य अधिकारी उपस्थित रहे।

https://www.amarujala.com/himachal-pradesh/una/dc-inspected-the-construction-of-oxygen-plant-una-news-sml3771884116

The Tribune

Mon, 19 July 2021

Ferozepur hospital gets oxygen plant

Ferozepur**:** In a much-needed relief for patients, an imported oxygen plant being set up at the Civil Hospital will start functioning from next week.

MLA Parminder Singh Pinki said the plant would generate over 1,000 litre oxygen per minute and had been set up at a cost of around Rs 1 crore. “Further, to ensure uninterrupted power supply, a 250-KV generator purchased at a cost of Rs 23 lakh has also been installed,” he added. As per information, the oxygen plant has been installed under the PM Cares fund. It has been manufactured by Tata Advance System and developed by the DRDO. — OC

https://www.tribuneindia.com/news/punjab/ferozepur-hospital-gets-oxygen-plant-285228

नईदुनिया

Sat, 17 July 2021

आक्सीजन संयंत्र का काम पूरा, परीक्षण के बाद शुरु होगी आपूर्ति

बैतूल: जिला अस्पताल में मरीजों को अब ऑक्सीजन सिलिंडर की कमी से होने वाली परेशानी का सामना नहीं करना पड़ेगा। गेस्कॉन कंपनी ने जिला अस्पताल परिसर में 400 एलपीएम(लीटर प्रति मिनट) क्षमता का संयंत्र स्थापित कर दिया है। इस संयंत्र की मशीनों का परीक्षण किया जा रहा है। उम्मीद है कि एक या दो दिन में संयंत्र से लोहे का ब्रिज बनाकर बिछाई गई तांबे की पाइप लाइन से वार्डों में ऑक्सीजन की आपूर्ति होने लगेगी। शुक्रवार को ठेका कंपनी का तकनीकी अमला वातावरण से आक्सीजन एकत्र करने वाली सभी मशीनों की जांच पड़ताल करने में जुटा रहा। मशीनों के सहारे बन रही ऑक्सीजन की गुणवत्ता का भी बेहद गंभीरता के साथ परीक्षण किया जा रहा है। इसमें किसी प्रकार की कोई कमी न रह जाए इसके लिए भी तकनीकी अमला हर स्तर पर मशीनों के माध्यम से परीक्षण का काम कर रहा है। उल्लेखनीय है कि कोरोना संक्रमण की दूसरी लहर में ऑक्सीजन की कमी का सामना मरीजों को करना पड़ा था। जिला प्रशासन भी ऑक्सीजन की कमी को दूर करने के लिए बेहद परेशान होता रहा। इस समस्या को दूर करने के लिए शासन स्तर से जिला अस्पताल में एक संयंत्र स्वीकृत किया है। इसके अलावा घोड़ाडोंगरी में हाइट्स कंपनी के माध्यम से 300 एलपीएम क्षमता का संयंत्र स्थापित किया जाएगा। जिला अस्पताल में ही डीआरडीओ के द्वारा 1000 एलपीएम क्षमता का ऑक्सीजन संयंत्र स्वीकृत किया है। इसकी मशीनों के पहुंचने पर वर्तमान में लगाए गए 400 एलपीएम क्षमता के संयंत्र को हटाकर मुलताई में स्थापित कर दिया जाएगा।

संयंत्र बंद हुआ तो कौन करेगा देखरेखः

जिला अस्पताल परिसर में ऑक्सीजन संयंत्र की स्थापना तो की जा रही है लेकिन इसमें तकनीकी गड़बड़ी या फिर उत्पादन संबंधी देखरेख के लिए प्रशिक्षित अमला ही नही है। ऐसे में मामूली तकनीकी खराबी आने की दशा में संयंत्र से ऑक्सीजन का उत्पादन ही बंद हो जाएगा। ठेका कंपनी गेस्कान के इंजीनियर एमएल धीमान ने बताया कि बैतूल में हमारी तकनीकी टीम संयंत्र का परीक्षण कर रही है। मशीनों के साथ उत्पन्ना की जा रही ऑक्सीजन की गुणवत्ता का परीक्षण पूरा होने के बाद संयंत्र अस्पताल प्रबंधन के हवाले कर दिया जाएगा। संयंत्र की देखरेख करने की जिम्मेदारी कंपनी की नहीं है। इसके लिए अस्पताल प्रबंधन को ही तकनीकी अमले की व्यवस्था करना होगा। उन्होंने बताया कि कुछ स्थानों पर कंपनी ने ऑक्सीजन संयंत्र प्रारंभ तो कर दिए थे लेकिन उनकी देखरेख के लिए तकनीकी अमला न होने से वे बंद पड़े हुए हैं। संयंत्र में बनने वाली ऑक्सीजन पाइप के सहारे सीधे बिस्तर पर मौजूद मरीज तक पहुंचती है। इस कारण ऑक्सीजन की सतत आपूर्ति होना बेहद आवश्यक है अन्यथा मरीजों को परेशानी हो सकती है।

स्वास्थ्य विभाग ने नहीं दिया प्रशिक्षणः

ऑक्सीजन संयंत्र को चलाने के लिए स्वास्थ्य विभाग की ओर से अब तक न तो किसी कर्मचारी को तकनीकी प्रशिक्षण दिया गया है और न ही तकनीकी अमले की तैनाती ही की जा रही है। ठेका कंपनी द्वारा कार्य पूर्ण करने के बाद संयंत्र का संचालन कैसे होगा इसे लेकर अधिकारी बेपरवाह बने हुए हैं।

ऑक्सीजन संयंत्र का संचालन करने के लिए अभी तो किसी को प्रशिक्षण नहीं दिलाया गया है। वैसे भी संयंत्र स्वचलित होता है इस कारण कोई खास देखरेख की जरूरत ही नही है।

डॉ एके तिवारी, सीएमएचओ, बैतूल

https://www.naidunia.com/madhya-pradesh/betul-betul-news-6976015

Sat, 17 July 2021

Bajaj Healthcare will focus on the anti-diabetic segment: Anil C. Jain, VC & Joint MD

Anil C. Jain Vice Chairman & Joint Managing Director, Bajaj Healthcare Ltd, talks about DRDO nod to manufacture 2-DG, fire incident at Panoli unit, guidance for FY22, margins, export markets, CapEx plans and focus areas among others during a candid chat with Swati Khandelwal, Zee Business

Anil C. Jain Vice Chairman & Joint Managing Director, Bajaj Healthcare Ltd, talks about DRDO nod to manufacture 2-DG, fire incident at Panoli unit, guidance for FY22, margins, export markets, CapEx plans and focus areas among others during a candid chat with Swati Khandelwal, Zee Business. Edited Excerpts:

Bajaj Healthcare will focus on the anti-diabetic segment: Anil C. Jain, VC & Joint MD

Q: Bajaj Healthcare has received a DRDO nod to manufacture 2-DG. What it means for the company and what kind of revenues do you expect from this?

A: The permission/license for 2-DG has been granted to us and we have already signed the agreement in regard to it and sent it to the DRDO. Everyone knows that 2-DG is the most proven drug for COVID and is quite effective. The patients who are hospitalized are recovering in just two to three days. We have prepared a lot for it and the API and formulation will be done by Bajaj Healthcare. We will manufacture around 2-3 metric tonnes of API. In Formulation, we have a capacity of making 50,000 sachets per month.

Q: When do you plan to launch this?

A: Now, we will apply for its license to DGCI. We have already sent the agreements and tomorrow we will get the agreements signed from DRDO. After that, we will apply for the license.

Q: Will you have to increase your capacity for this and will you have to make some CapEx for it? Also what kind of margins do you get from this and will you be exporting this drug as well?

A: We have a capacity for the purpose, so we are not supposed to make any CapEx for it. API and formulation can be manufactured properly at our existing facility. The kind of sales that is visible for the product suggests that there will be good growth in it.

Q: Tell us about the Product Pipeline of the company? Also, the company has launched many Covid Related Drugs. Update us about those? Which kind of launches should be expected in FY22?

A: Besides 2-DG, we launched Posaconazole, an anti-fungal drug. Its tablet and suspension have been launched and it is already available in the market. In addition to this, we are working on Baricitinib and have already received the text license for the product. We have developed its

formulation. Apart from this, many non-COVID drugs are also in the pipeline and this year we will launch 4-5 new non-COVID drugs this year.

Q: What are your expectations at the end of this year? How much will the COVID portfolio contribute to Overall sales?

A: There will be a 15-20% will increase in COVID drugs. Apart from this, our regular products – the non-COVID products – will grow well. We are bringing new molecules and our R&T team is working on it. We have many product launches from the patents that will be off in February and March 2022.

Q: There was a fire incident at one of your units. You did mention there was no loss or injury to any human but was there any financial loss?

A: The fire incident occurred at the Panoli Unit. It is a small unit and there was no injury or anything else. There was a financial loss but we have insurance coverage for the same. The unit will be restarted at the earliest and there will be no major impact on it.

Q: Coming to Guidance for FY22, you mentioned that over the next 2-3 years you are expecting a topline in excess of Rs 1,000 crore. Which segment do you feel will be a major contributor here? Will you revise the guidance with the way your portfolio is churning?

A: As I have said earlier that we will cross the mark of Rs 1,000 crore in the next two to three years. The anti-diabetic and anti-viral drugs category will play a vital role in it.

Q: Tell us about the Strategy ahead in terms of pain management and anti-diabetic and where will you be focusing more on going ahead?

A: We will focus more on the anti-diabetic category because its demand is increasing. There is a growth of around 10-15% in the anti-diabetic patients. Many of its products are going to be off-patent and a good demand is visible in it. The company has already manufactured two to three molecules and are waiting for them to be off-patent.

Q: What's the outlook for H2FY21 in terms of margins and do you expect margins to sustain at or above 25%?

A: The margins will stay in the range of 20-25%.

Q: How do you see the Exports going ahead?

A: We have made a lot of registrations in exports like in Russia, Latin, Korea. We have already submitted the Drug Master File (DMF) of many products and are waiting for approval for those products. So in the next half of the year or the next year, you will get to see that many registrations will reach us. We will get a growth of around 10-15% in export.

Q: Is there any CapEx for the H2FY22 and are you looking forward to any inorganic plans for this year? Also, let us know about your financial situation and is there any need to raise funds for CapEx or do you have enough cash to deploy?

A: There is no need for the CapEx. Internal accruals will be enough to complete the works. We bought a big unit last year, which will be commissioned this year. The next CapEx will be made after 2022 at our land parcel at Dahej.

Q: What CapEx has been lined up for that purpose?

A: A CapEx of more than Rs 200 crore will be infused in it in 2022-23.

Q: If there any plans of diversification in some other areas as part of your overall growth strategy?

A: Currently, we are focusing more on formulations. The formulation that stands at 8-10% at present will be taken up to 25-30%. We will think about something else after it is stabilized.

https://www.zeebiz.com/companies/news-bajaj-healthcare-will-focus-on-the-anti-diabetic-segment-anil-c-jain-vc-joint-md-160865

DRDO on Twitter

ANI @ANI · Jul 17

Telangana: Defence Research and Development Organisation (DRDO), in collaboration with Ecolastic Private Limited, launched environmentally safe packaging products made from natural and plant-based food-grade materials (1/3)

ANI @ANI · Jul 17

Eco-friendly products like these are essential for the survival of mankind and DRDO has played a vital role in bringing it out: Director of Advanced Systems Laboratory (ASL), DRDO, Ram Manohar Babu (2/3)

Defence News

Defence Strategic: National/International

Press Information Bureau
Government of India

Ministry of Defence

Fri, 16 July 2021 5:05PM

'Southern Air Command Commanders' conference

Air Chief Marshal RKS Bhadauria PVSM AVSM VM ADC, CAS visited Thiruvananthapuram on 15 & 16 July 2021 for Southern Air Command (SAC) Commanders' Conference.

Air Marshal Manavendra Singh AVSM VrC VSM, AOC-in-C SAC received the CAS on his arrival and briefed him on the status of operational preparedness of the Command. In his address to SAC Commanders, CAS re-iterated the need for IAF to remain ever ready for fulfilling its operational mandate. He appreciated the efforts of SAC in fast tracking numerous infrastructure initiatives and undertaking tasks of operational significance within its Area of Responsibility. CAS also expressed his satisfaction at the swift operationalisation achieved by newly inducted assets particularly the LCA Tejas and Su-30 MKI squadrons.

https://pib.gov.in/PressReleasePage.aspx?PRID=1736186

पत्र सूचना कार्यालय
भारत सरकार

रक्षा मंत्रालय

Fri, 16 July 2021 5:05PM

दक्षिणी वायुसेना कमान के कमांडरों का सम्मेलन

वायुसेना प्रमुख एयर चीफ मार्शल आरकेएस भदौरिया पीवीएसएम एवीएसएम वीएम एडीसी, ने दक्षिणी वायु कमान (एसएसी) कमांडरों के सम्मेलन के लिए दिनांक 15 और 16 जुलाई 2021 को तिरुवनंतपुरम का दौरा किया।

एयर मार्शल मानवेंद्र सिंह एवीएसएम वीआरसी वीएसएम, दक्षिणी वायुसेना कमान के एओसी-इन-सी ने उनकी अगवानी की और उन्हें कमान की अभियानगत तैयारियों की स्थिति के बारे में जानकारी दी। दक्षिणी वायुसेना कमान के कमांडरों को अपने संबोधन में वायुसेना प्रमुख ने अपने सैन्य अभियान संबंधी उत्तरदायित्व को पूरा करने में भारतीय वायुसेना की हमेशा तैयार रहने की आवश्यकता को दोहराया। उन्होंने कई बुनियादी ढांचा पहलों पर तेजी से नज़र रखने और अपने उत्तरदायित्व के क्षेत्र में अभियानगत महत्व का कामकाज करने के लिए दक्षिणी वायुसेना कमान के प्रयासों की सराहना की । वायुसेना प्रमुख ने वायुसेना में विशेषकर एलसीए तेजस और सुखोई-30 एमकेआई स्क्वाड्रनों जैसी नई शामिल सैन्य संपत्तियों द्वारा तेजी से अभियानगत तैयारी हासिल कर लेने पर संतोष भी व्यक्त किया।

https://pib.gov.in/PressReleasePage.aspx?PRID=1736224

Press Information Bureau
Government of India

Ministry of Defence

Sat, 17 July 2021 11:18AM

Indian Navy accepts first batch of two MH-60R Multi Role Helicopters (MRH)

Indian Navy accepted the first two of its MH-60R Multi Role Helicopters (MRH) from US Navy in a ceremony held at Naval Air Station North Island, San Diego on 16 Jul 21. The ceremony marked the formal transfer of these helicopters from US Navy to Indian Navy, which were accepted by His Excellency Taranjit Singh Sandhu, Indian Ambassador to USA. The ceremony also witnessed exchange of helicopter documents between Vice Adm Kenneth Whitesell, Commander Naval Air Forces, US Navy and Vice Adm Ravneet Singh, Deputy Chief of Naval Staff (DCNS), Indian Navy.

MH-60R helicopters manufactured by Lockheed Martin Corporation, USA is an all-weather helicopter designed to support multiple missions with state of the art avionics/ sensors. 24 of these helicopters are being procured under Foreign Military Sales from the US Government. The helicopters would also be modified with several India Unique Equipment and weapons.

The induction of these MRH would further enhance Indian Navy's three dimensional capabilities. In order to exploit these potent helicopters, the first batch of Indian crew is presently undergoing training in USA.

https://pib.gov.in/PressReleasePage.aspx?PRID=1736365

पत्र सूचना कार्यालय
भारत सरकार

रक्षा मंत्रालय

Sat, 17 July 2021 11:18AM

भारतीय नौसेना ने दो एमएच-60आर मल्टी रोल हेलीकॉप्टरों (एमआरएच) के पहले बैच को स्वीकार किया

भारतीय नौसेना ने दिनांक 16 जुलाई 2021 को सैन डिएगो के नॉर्थ आइलैंड नेवल एयर स्टेशन में आयोजित एक समारोह में अमेरिकी नौसेना से अपने एमएच-60आर मल्टी रोल हेलिकॉप्टर (एमआरएच) के पहले दो हेलिकॉप्टर को स्वीकार किया। समारोह में इन हेलीकॉप्टरों का अमेरिकी नौसेना से भारतीय नौसेना में औपचारिक रूप से स्थानांतरण किया गया, जिनको अमेरिका में भारतीय राजदूत महामहिम तरनजीत सिंह संधू ने स्वीकार किया। समारोह में अमेरिकी नौसेना के वाइस एडमिरल केनेथ व्हाइटसेल, कमांडर नेवल एयर फोर्सेज़ और वाइस एडमिरल रवनीत सिंह, नौसेना उप प्रमुख (डीसीएनएस), भारतीय नौसेना के बीच हेलीकॉप्टर दस्तावेजों का आदान-प्रदान भी हुआ।

लॉकहीड मार्टिन कॉर्पोरेशन, यूएसए द्वारा निर्मित एमएच-60आर हेलीकॉप्टर हर मौसम में कारगर एक हेलिकॉप्टर है जो अत्याधुनिक एवियोनिक्स/ सेंसर के साथ कई मिशनों के लिहाज से बनाया गया है। इनमें से 24 हेलीकॉप्टर अमेरिकी सरकार से विदेशी सैन्य बिक्री के तहत खरीदे जा रहे हैं। हेलीकॉप्टरों को भारत के अनेक प्रकार के उपकरणों और हथियारों के दृष्टिकोण से संशोधित भी किया जाएगा।

इन एमआरएच को शामिल करने से भारतीय नौसेना की त्रिविमीय क्षमताओं में और इजाफा होगा। इन शक्तिशाली हेलीकॉप्टरों पर प्रशिक्षण के लिए भारतीय पायलट दल का पहला जत्था इस समय अमेरिका में है।

https://pib.gov.in/PressReleasePage.aspx?PRID=1736392

Press Information Bureau
Government of India

Ministry of Defence

Fri, 16 July 2021 5:29PM

INS Tabar at Port of Brest, France

As part of the ongoing Overseas Deployment, INS Tabar entered the Port of Brest, France on 12 July 21. The ship was received by a Ceremonial Guard of the French Navy on arrival in Port.

Mr Jawed Ashraf, Ambassador of India to France and Monaco visited the ship and appreciated the ship's crew for their contribution to India's maritime security and in furthering defence cooperation with friendly foreign countries.

The Commanding Officer accompanied by the Indian Defence Adviser called on Vice Admiral Olivier Lebas, Commander of Atlantic Maritime Region (CECLANT) at his Headquarters in Prefecture Maritime Fort, Brest. The ship dressed overall on the occasion of the Bastille Day (national day of France), as per naval custom.

On departure from Port, INS Tabar will participate in a Maritime Partnership Exercise with French Navy warship FNS Aquitaine.

https://pib.gov.in/PressReleasePage.aspx?PRID=1736194

पत्र सूचना कार्यालय
भारत सरकार

रक्षा मंत्रालय

Fri, 16 July 2021 5:29PM

आईएनएस तबर फ्रांस के पोर्ट ऑफ ब्रेस्ट में

वर्तमान समय में विदेशों में जारी तैनाती के अंतर्गत आईएनएस तबर ने दिनांक 12 जुलाई 2021 को फ्रांस के पोर्ट ऑफ ब्रेस्ट में प्रवेश किया। पोर्ट में आगमन पर फ्रांसीसी नौसेना के एक सेरेमोनियल गार्ड द्वारा जहाज का स्वागत किया गया।

फ्रांस और मोनाको में भारत के राजदूत श्री जावेद अशरफ ने जहाज का दौरा किया और भारत की समुद्री सुरक्षा तथा मित्र देशों के साथ रक्षा सहयोग को आगे बढ़ाने में योगदान के लिए जहाज के चालक दल की सराहना की।

कमांडिंग ऑफिसर ने भारतीय डिफेंस एडवाइज़र के साथ अटलांटिक मैरीटाइम रीजन (सीईसीएलएएनटी) के कमांडर वाइस एडमिरल ओलिवियर लेबास से प्रीफेक्चर मैरीटाइम फोर्ट, ब्रेस्ट में उनके मुख्यालय में मुलाकात की। नौसेना के रीति-रिवाजों के अनुसार, बैस्टिल दिवस (फ्रांस के राष्ट्रीय दिवस) के अवसर पर जहाज को पूरे तौर पर तैयार किया गया था।

बंदरगाह से प्रस्थान करने पर, आईएनएस तबर फ्रांसीसी नौसेना के युद्धपोत एफएनएस एक्विटाइन के साथ समुद्री साझेदारी युद्धाभ्यास में भाग लेगा।

https://pib.gov.in/PressReleasePage.aspx?PRID=1736256

ThePrint

Sun, 18 July 2021

Defence ministry extends emergency powers to armed forces as India-China stand-off continues

Anti-drone systems, HAMMER weapon systems for Rafale jets are among major capital procurements under emergency powers

By Amrita Nayak Dutta

New Delhi: The Defence Ministry has granted yet another extension of the emergency powers, which were accorded to the Indian Army, Navy and Air Force last year, for emergent revenue procurements and works, amid the stand-off with China at the Line of Actual Control (LAC) in eastern Ladakh.

According to top defence sources, the emergency powers for revenue procurements —through the fast track procedure —have been extended till 31 August.

Last month, Defence Minister Rajnath Singh-headed Defence Acquisition Council (DAC) had also extended emergency powers of the defence services for capital acquisitions till 31 August 2021.

The emergency capital and revenue procurement powers were first extended upto March 2021.

An Indian Army truck on a Kashmir highway leading to Ladakh | Representational image | ANI

Capital procurement powers pertain to the acquisition of capital assets, weapons/weapon systems and other operationally critical equipment which leads to permanent enhancement of operational capabilities of the defence forces.

Revenue procurement powers relate to the procurement of critical spares and ammunition required to sustain or maintain these assets.

"Invoking of emergency powers for both revenue and capital procurement indicates the government's intent to enhance our fighting and engaging capabilities to the next level and also sustain them through the long term," a source in the government said.

After the Galwan Valley clash in June last year, the defence ministry had, for the first time, given emergency capital procurement powers to the armed forces to procure weapon systems of upto Rs 300 crore on an urgent basis without further clearances to cut short the long and tedious procurement cycle.

Prior to that, emergency powers were granted to the services after the Balakot airstrike in February 2019 and the 2016 Uri surgical strike covered only revenue procurements.

CDS cited operational readiness of armed forces in Ladakh

Top defence sources told ThePrint that before Rajnath Singh approved the extension of the emergency powers, the Chief of Defence Staff, General Bipin Rawat, cited high operational readiness of the forces in Ladakh for the move.

The CDS had noted that it is unlikely that the situation at the LAC will ease anytime soon and that would require the armed forces to be at peak operational readiness in the region, and he thus cited the need for extending the emergency powers both for capital and revenue procurement, the sources added.

In the last one year, India has deployed nearly 50,000 additional troops in the Ladakh region and deployed a large number of ground and air assets for any contingencies.

Spares, HAMMER under emergency powers

Sources said that apart from some major capital purchases, a number of spares and other smaller items will be purchased under the emergency revenue procurement powers.

"Aside from some major capital purchases, there is also a number of spares and other smaller items required to be purchased for maintenance of our assets deployed in the frontlines, its overhauls and refits," a source said.

Some of these emergency revenue procurement powers will also be helpful in building large-scale infrastructure such as roads and bridges in eastern Ladakh.

Among the major capital procurements initiated by the defence ministry are anti-drone systems being procured by the Army which can jam the communication and navigation signals of a rogue drone or spoof it.

Defence sources also said that the IAF is planning to buy another lot of HAMMER air-to-ground precision-guided weapon system for its Rafale fighter jets using the emergency powers.

The Highly Agile and Manoeuvrable Munition Extended Range costs around Rs70 lakh and consists of a guidance kit and a range-extension kit fitted on a standard Mk 82 bomb of 250 kg.

Other procurements include armour-piercing fin-stabilised discarding sabot (APFSDS) ammunition fired by the T-72 and T-90 main battle tanks, additional Heron drones, loitering munition, Spice Bombs, and Man Portable Air Defence System (MANPADS).

https://theprint.in/defence/defence-ministry-extends-emergency-powers-to-armed-forces-as-india-china-stand-off-continues/698129/

The Tribune

Sat, 17 July 2021

Navy Chief: India looks to pursue unmanned underwater technologies

New Delhi: India is looking to pursue underwater unmanned technologies. The US has made rapid advances in this field and given some exposure to India of technologies and systems that the Indian Navy wishes to pursue, said the Indian Navy Chief Admiral Karambir Singh at a seminar.

Navy Chief Admiral Karambir Singh.

He cited the discovery of 'Chinese-origin' autonomous underwater gliders in Indonesian waters as an indication to the extent to which technology has progressed.

The seminar 'Trends and Technologies in Underwater Vehicles' was organised by the Directorate of Naval Design (Submarine Design Group) in partnership with Society of Indian Defence Manufacturers (SIDM).

Be ready to deal with any situation

Air Chief Marshal RKS Bhadauria has asked top commanders of the Southern Air Command to remain ever ready for fulfilling its operational mandate. He made the remarks at a commanders' conference of the SAC.

Admiral Singh listed 'underwater domain awareness' as one of the most critical areas for the Navy, adding that complexity of modern warfare meant that enablers such as 'artificial Intelligence' would be essential for efficient and effective use of underwater systems. At the same seminar, the Vice Chief of the Indian Navy, Vice Admiral G Ashok Kumar, said the Indian Navy, had understood the importance of unmanned solutions and recently envisioned a detailed roadmap for itself in this realm. The Navy intends to share with the industry what is needed, when and at what cost and in what numbers.

Underwater vehicles bring in results which are too prominent to be ignored, the Vice Admiral said.

https://www.tribuneindia.com/news/nation/navy-chief-india-looks-to-pursue-unmanned-underwater-technologies-284330

ThePrint

Sun, 18 July 2021

Why setting up integrated theatre commands should not be rushed — former service Chiefs explain

Former Navy chief Admiral Arun Prakash (Retd), former IAF chief Air Chief Marshal Fali H. Major (Retd) and former defence secretary NN Vohra were among the experts debating the theaterisation process

By Amrita Nayak Dutta, Edited by Manasa Mohan

New Delhi: Setting up of the integrated theatre commands should not be a rushed affair, even as bringing about jointness among the three defence services on various aspects should remain a priority, top defence and security experts said as they debated India's national security challenges Friday evening.

The webinar on challenges in higher defence management reforms was organised by India International Centre.

The panellists included former Navy chief Admiral Arun Prakash (Retd), former Indian Air Force (IAF) chief Air Chief Marshal Fali H. Major (Retd), former Northern Army Commander Lt Gen. D.S. Hooda and former Chief of Integrated Defence Staff Lt Gen. Satish Dua (Retd).

File photo of Indian Army, Navy and Air Force personnel paying tributes to field Marshal SHFJ Manekshaw on his 12th death anniversary in June 2020 | ANI

N. N. Vohra, former defence secretary and governor of the erstwhile state of Jammu & Kashmir, also participated in the session.

The webinar comes at a time India is working towards theaterisation — the big military reform that involves integrating the Army, the Navy and the Air Force and their assets into five theatre commands for a unified approach to future war fighting.

However, the services, particularly the Indian Air Force (IAF), and Chief of Defence Staff (CDS) Gen. Bipin Rawat have not been on the same page over the role of the IAF in theatre commands.

This became evident earlier this month when Gen. Rawat labeled IAF as a support arm to the ground forces — likening it to the role of artillery and engineers in the Army. In response, the IAF chief said air power has a huge role to play in any of the integrated battle areas and is not an issue of support alone.

Aside from discussing the contentious issue of dividing air assets in the theaterisation process, the experts also discussed the roles of the service chiefs and the Department of Military Affairs and how different elements of the security apparatus, such as the paramilitary forces and the Indian Coast Guard, will fit in the theatre commands.

'Should not be rushed'

During the discussion, Vohra said there should be no tearing hurry in setting up of the integrated theatre commands.

"If we do anything in a hurry or leave some element of dissatisfaction amongst the stakeholders, then this venture may not meet with total success, and it is important that it does," he said.

On the issues coming to the fore in establishing theatre commands, Vohra said there should be a clarity on what the defence minister should do in case of an operational contingency — will he speak directly with the theatre commanders or with the service chiefs or only with the CDS. He also said clarity is needed on the role of the defence secretary.

He further said there needs to be an assessment of how the internal and external security will be managed under the theatre commands, given that there are lakhs of paramilitary personnel and the Indian Coast Guard.

Lt Gen. Dua noted that modern warfare is getting increasingly complex with a multitude of threats, and so there is a need to shorten the decision loop.

"We are in the process of reorganising the military into theatre commands that will exercise operational control over the assets of three services, enable joint planning in warfighting and lead to resource optimisation," he said.

However, Admiral Arun Prakash said the aim was to enhance jointness, and added that theaterisation could have come later.

He emphasised that there should be no limit of three years in establishing theatre commands. "There should be no rush to create theatre commands until there is complete consensus."

ACM Fali H. Major said the very concept of an integrated theatre command is lost if one service is given primacy.

"This is the bone of contention — the ownership and supremacy issues," he said.

He said an integrated theatre command should be a true joint tri-service command, where the theatre commander is appointed on rotation from the three services.

He further said that instead of excluding the Army's northern command from the theatre commands, it should be the first theatre command to be raised, as a testbed, given that it has been a conflict zone historically.

Agreeing, Lt Gen. Hooda added there is a need for integration in joint warfighting and for that integrated structures are needed.

Once there is a joint warfighting doctrine in place and greater integration has been achieved at lower levels, integrated theatre commands could be established then, Lt Gen. Hooda said.

Issue of air power

ACM Major said the IAF is not used to a term like 'allocation of resources', referring to the division of air assets between theatre commands.

If the IAF wants to "beef up a squadron of aircraft in a conflict zone in the north from east", it is done seamlessly as each command and squadron knows the deployment plans.

Once the IAF resources are allotted to the eastern sector, they can be pulled out anytime, but to pull out a brigade from the north will take a month, he explained.

He said the idea of an air defence (AD) command was never mooted by the IAF.

Air defence, he emphasised, is the primary task of the IAF — the air defence of the Indian skies, contiguous areas and littoral states — and that is an ongoing 24×7, 365-day job that has to be carried out, irrespective of whether it's times of peace or war.

There are 7,500 aircraft and other flying objects crisscrossing the Indian skies on a daily basis and the IAF, along with civil surveillance radars, make sure there are no intrusions, he said.

This task is possible as they have placed all their AD assets carefully and strategically, ACM Major said. If Army and naval AD assets are integrated during war, what happens during peace, he asked.

"Air defence command is a no-brainer, since many advanced countries such as Russia and the US created them and disbanded them because they were not working out," he said.

Admiral Prakash said air power has been an issue of contention not just in India but also other countries.

"The IAF has been quite insecure about placing its assets under any other command of any other service.

The veterans agreed that it is for the three chiefs to sit down together with the CDS and the defence minister to discuss and resolve the issue.

Lt Gen. Hooda said a joint warfighting doctrine can for instance, decide what is the best employment for air power.

The defence experts agreed that there should also be a joint doctrine on national security and that the political leadership should be more involved in defence planning.

https://theprint.in/defence/why-setting-up-integrated-theatre-commands-should-not-be-rushed-former-service-chiefs-explain/697900/

#SWARAJYA

Sun, 18 July 2021

Govt planning four new airports and 37 helipads to boost connectivity in Ladakh

In a big fillip for air connectivity to the Ladakh region, the Government is planning to build four new airports and 37 helipads cross the Union Territory (UT), reports Economic Times'

The Government is said to have already identified the land for four new airports which would be capable of handling wide-body aircraft. The Government is also said to be planning on an alternative airfield for the town of Leh and a direct link to the Zanskar valley.

The Government is also planning an airport near Changtang that links to Pangong Tso Lake, where border tensions with China escalated last year after the People's Liberation Army (PLA) moved in thousands of soldiers to the Line of Actual Control (LAC) in the pursuit of its expansionist agenda.

Also, while Kargil already has a military airfield, the Government is said to have now identified land for an alternate civilian airport in the region. It should be noted that the present airfield at Kargil is used by the Indian Air Force (IAF) and is yet to get the approvals to begin civilian operations.

Meanwhile, 37 helipads are presently under construction across Ladakh. These are spread across remote and inaccessible parts of the UT. Once completed, these will be capable of even handling the heavy Chinook CH 47 helicopters. Also, many of these are likely to be operationalised this year itself.

https://swarajyamag.com/insta/govt-planning-four-new-airports-and-37-helipads-to-boost-connectivity-in-ladakh

The Statesman

Sun, 18 July 2021

GRSE lays keel for fast patrol vessel for ICG

GRSE has also begun construction of the second and third ships in the eight anti-submarinewarfare shallow watercraft project

Kolkata: Garden Reach Shipbuilders and Engineers Ltd (GRSE), Kolkata, has laid the keel of a fast patrol vessel (FPV) for the Indian Coast Guard while it has also begun the production of the second and third ship in the eight anti-submarine warfare shallow watercraft (ASWSWC) project.

'Zoroaster', an FPV earlier manufactured by GRSE for Seychelles (file photo)

The GRSE has shared that the FPV is being constructed for ICG as a replacement for the recently exported FPV 'SCG PS Zoroaster' which was handed over by Prime Minister Narendra Modi to the government of Seychelles.

The FPVs are medium-range surface vessels proficient at operating in the maritime zones of India. These powerful, fuel-efficient platforms are designed to perform multipurpose operations like patrolling, anti-smuggling, anti-poaching, and rescue operations.

The vessels are designed for a maximum speed of 34 knots with an endurance of more than 1,500 nautical miles. It will be built with advanced control systems, water jet units and an integrated bridge system for all communication and navigation structures.

The ship is also fitted with a 40/60 gun as the main armament and can accommodate 35 personnel. The entire design of these FPVs has been developed In-House by GRSE as per requirements specified by the ICG.

Meanwhile, GRSE has begun construction of the second and third ships in the eight ASWSWC project. The compact and complex stealth crafts are designed by GRSE, and these platforms will be packed with state-of-the-art weapons and sensors like hull-mounted sonar, towed sonar, torpedoes and rocket launchers to interdict and destroy sub-surface targets in coastal waters.

The ships are capable of 'search and rescue' and 'low-intensity maritime operations' and are propelled by water jets capable of highspeed movement.

The keel-laying ceremony was held in the presence of IG Maneesh V Pathak, TM, commander, Coast Guard Region (N-E) and Rear Admiral VK Saxena, IN (Retd.), chairman and managing director, GRSE, among other officials.

https://www.thestatesman.com/bengal/grse-lays-keel-fast-patrol-vessel-icg-1502983211.html

asianet newsable

Sun, 18 July 2021

Navy, Coast Guard get new 12.7mm M2 heavy machine guns

Manufactured under Transfer of Technology agreement from Israeli weapon maker Elbit Systems, the guns are meant for marine applications and can remotely engage targets

By Anish Kumar

New Delhi: Tiruchirapalli-based Ordnance Factory on Saturday handed over a total of 25 12.7mm M2 NATO standard heavy machine guns or the stabilised remote control gun system to the Indian Navy and Indian Coast Guard, amidst its restructuring process.

Of these, 15 guns were handed over to the Indian Navy while 10 to the Indian Coast Guard.

Manufactured under the Transfer of Technology agreement from Israeli weapon maker Elbit Systems, the guns are meant for marine applications and can remotely engage targets.

The guns are equipped with an inbuilt charge-coupled device camera, thermal image, and a laser range finder to observe and track targets through the day and night operations.

"OFB Tiruchirapalli has also created modern state-of-art assembly and testing facilities for the indigenous manufacture of the SRCG system," OFB said in a statement.

On the occasion, Director General of Naval Armament KSC Iyer, Director General Ordnance Factories and Chairman of OFB CS Vishwakarma were present.

Last year, Defence Minister Rajnath Singh launched the weapon through video-conferencing as part of Atmanirbhar Bharat Abhiyan.

Elbit Systems had won the contract worth $173 million. The contract will be executed over a five-year period.

The SRCG family is a third-generation, multi-purpose weapon system for small and mid-calibre weapons.

Since 2016, India has been negotiating to buy 747 12.7 mm guns from Elbit Systems.

Ammunition for the 12.7 mm RWSs would be manufactured at the OFB plant in Kolkata.

https://newsable.asianetnews.com/india-defence/indian-navy-coast-guard-get-new-12-7mm-m2-heavy-machine-guns-vpn-qwdvgy

ThePrint

Sun, 18 July 2021

Why induction of American MH-60 Romeo choppers is good news for Indian Navy

India Friday received two of the 24 MH-60 Romeo anti-submarine helicopters it ordered. A first batch is expected to land in the country next year.

By Snehesh Alex Philip

New Delhi: India Friday formally received the first two of the 24 MH-60 'Romeo' anti-submarine helicopters at the San Diego's Naval Air Station North Island in the US, which the Indian Navy said will enhance its "three dimensional capabilities", i.e. on the surface, in the air and underwater.

The handover is a sign of growing relations between the US and India — the two aircraft are from the US Navy's stock, given to India to ensure faster induction.

According to sources in the Indian defence and security establishment, the first batch of the helicopters, also known as 'submarine hunters', will land in India only mid next year. This is because the helicopters will be used for training an Indian crew in the US.

The Mh-60 Romeo chopper | Photo by special arrangement

More will be handed over to India in the coming months under a USD 2.4 billion deal.

The Romeo, manufactured by Lockheed Martin Corporation, is an all-weather helicopter designed to support multiple missions with state of the art avionics and sensors.

India had ordered 24 of these helicopters under the Foreign Military Sales (FMS) from the US government last year.

The Mh-60 Romeo chopper | Photo by special arrangement

FMS is the American equivalent of the government-to-government contracts India has carried out with Russia for various systems and with France for the Rafale fighter jets.

The helicopters will also be modified with several equipment and weapons unique to India, the Navy said in a statement.

Sources said these relate to the sensors and specialised weapons package, which includes Hellfire air-to-surface missiles and Mark 54 anti-submarine torpedoes.

ThePrint had reported in April that these helicopters will be delivered in July despite the Covid-19 pandemic.

Hamid Salim, vice president, Sikorsky Maritime & Mission Systems, which was bought over by Lockheed Martin, said the delivery of the first two MH-60R Romeo helicopters to the Indian Navy marks the beginning of a new era of collaboration and partnership between the United States Navy, the Indian Navy and Sikorsky.

William L. Blair, vice president and chief executive, Lockheed Martin India, said, "MH-60R is the most advanced maritime multi-mission helicopter in operation — deployed globally, and its mission performance by far, second to none. We stand committed to making this program a tremendous success in partnership with the United States Navy and the Indian Navy."

Flip to Navy's three-dimensional capabilities

The 24 Romeo, ordered by India last year, is meant to meet the immediate requirement of the Navy which currently relies on its P-8i aircraft for anti-submarine operations amid China's increasing forays into the waters around India.

This will replace its fleet of the ageing British-built Sea King helicopters, which is now mostly used for transport rather than its actual role — anti-submarine warfare.

The Boeing P8i aircraft, that is currently deployed, operates from land and is used to keep vigil on enemy submarines and for reconnaissance missions.

The Navy, though, is in dire need of ship-borne helicopters. It is also pursuing a separate programme for 123 Naval Multi-Role Helicopters (NMRH) under the 'Make in India' initiative. However, the programme has not made much headway.

The Romeo choppers also have anti-surface warfare capabilities, which means they will be capable of detecting surface threats and taking action against enemy ships too.

Besides tracking submarines and engaging them, these choppers are also capable of performing other maritime roles such as search and rescue, logistics support, personnel transport, medical evacuation and surveillance.

(Edited by Manasa Mohan)

https://theprint.in/defence/why-induction-of-american-mh-60-romeo-choppers-is-good-news-for-indian-navy/697940/

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Sat, 17 July 2021

Indian Navy will likely settle for MH-60R Engine for Naval-IMRH

The Indian Navy has finally decided to come onboard the Hindustan Aeronautics Limited (HAL) proposed development of the 10ton Indian Multi-Role Helicopter (IMRH) medium-lift helicopter program. HAL has assured the Navy that the Naval-IMRH will have a different engine as requested by the Navy and will have design changes that are optimized for sea level operations including longer range and payload capacity than the Army/Airforce variants.

Hindustan Aeronautics Limited (HAL) plans to equip Airforce / Army variants of the Indian Multi-Role Helicopter (IMRH) with one set of engine options and Navy with another engine option. HAL received bids from France for its Aneto turboshaft engine family, from Russia on its VK-2500PS-03 helicopter turboshaft engine that are used on Mi-17V in service with IAF, and America's GE Aviation has offered its T700-401C/-701C engines that are also used on the Sikorsky SH-60/MH-60 Seahawk .

HAL is expected to have a modular engine bay design that can cater to two different engines so has no to be dependent on one source of OEM that will be license manufactured locally in India once they are finalized by the users. Both Army and air force will likely settle for the same set of engines. Navy will likely opt for the Variant of the GE Aviation's developed T700-401C/-701C engine family that are usually optimized as per user requirement, variant of which is also used on the 24 MH-60 Seahawk Helicopters that were ordered by the Indian Navy.

Indian Navy has plans to acquire 63 Naval-IMRH that are optimized for the Anti-Submarine Warfare (ASW) / Anti-Surface missions and 27 to be used for (ASuW) Special Operations / Search & Rescue (SAR) mission profiles. T700-401C/-701C engines are operational widely in many countries and have a 98% Availability rate and also are used as powerplants in S Korean KAI KUH-1 Surion, European NHIndustries NH90, and also on British-Italian AgustaWestland AW189 Medium Class Helicopters.

https://www.eletimes.com/indian-navy-will-likely-settle-for-mh-60r-engine-for-naval-imrh

Hindustan Times

Sat, 17 July 2021

UK's largest warship enters Indian Ocean, to conduct exercises with Indian Navy

Britain has described the maiden voyage of HMS Queen Elizabeth and its task group as the country's most ambitious naval deployment for two decades, and the warships will also sail to the South China Sea for military drills with the US Navy and Japan's Maritime Self-Defense Force

By Rezaul H Laskar

The UK's largest warship, the aircraft carrier HMS Queen Elizabeth, and its strike task group has sailed into the Indian Ocean region, where it will conduct joint exercises with the Indian Navy as part of Britain's efforts to enhance its profile in the Indo-Pacific.

Britain has described the maiden voyage of HMS Queen Elizabeth and its task group as the country's most ambitious naval deployment for two decades, and the warships will also sail to the South China Sea for military drills with the US Navy and Japan's Maritime Self-Defense Force.

UK's largest warship HMS Queen Elizabeth. (File photo)

UK foreign secretary Dominic Raab said on Friday the carrier group's deployment "marks the start of a new era of defence cooperation with allies in India and the Indo-Pacific". He added, "By visiting 40 countries and working alongside our partners, the UK is standing up for democratic values, seizing new trading opportunities and tackling the shared threats we face together."

"This deployment will provide tangible reassurance and security to the UK's friends and a credible deterrence to those who seek to undermine global security," the British high commission said in a statement.

The carrier group entered the Indian Ocean region after a series of engagements and operations in the Mediterranean. The 65,000-tonne carrier will participate in the Konkan exercise with warships of the Indian Navy in the Bay of Bengal. The drills are expected to be conducted around the Andaman and Nicobar Islands with the involvement of Indian destroyers, submarines and P8I anti-submarine warfare aircraft.

On its way back to the UK later in the year, the carrier group is expected to join another tri-services exercise with the Indian military in the Arabian Sea in October. All three services are expected to participate in this three-day war game.

Britain said HMS Queen Elizabeth's deployment represents the country's commitment to deeper diplomatic, economic and security ties with India and in the Indo-Pacific region, and also demonstrates the UK's support for freedom of passage through vital trading routes and for a free, open and inclusive order in the Indo-Pacific.

Defence secretary Ben Wallace said: “The UK carrier strike group deployment is a major moment for UK defence as we develop this cutting edge capability across the globe. The group is sailing the Indian Ocean and will shortly conduct exercises with the Indian Navy, building on our already strong partnership with an important ally and friend.”

The deployment reflects the UK’s commitment to strengthening existing alliances and forging new partnerships with like-minded countries to face the challenges of the 21st century, he added.

The carrier group sailed into the Indian Ocean shortly after the UK’s posted its first international liaison officer at the Indian Navy’s Information Fusion Centre-Indian Ocean Region (IFC-IOR) in Gurugram. The US, Australia, France and Japan also have a presence at the centre, which tracks shipping and monitors threats such as maritime terrorism and piracy in regional waters.

Lieutenant Commander Stephen Smith, who was posted at the centre last month, works with India’s armed forces and liaison officers from the other nations to enhance maritime domain awareness in the region.

As part of its maiden operational deployment, the UK carrier group will sail more than 26,000 nautical miles and engage with 40 countries from the Mediterranean to the Indo-Pacific and back again.

The carrier group’s presence in Indian waters will give the Indian military an opportunity to assess first-hand the capabilities of its fifth generation F-35B Lightning multi-role aircraft, which are jointly manned by the Royal Air Force, Royal Navy and US Marine Corps.

The carrier group also serves as the spearhead of the UK’s joint expeditionary capability and a cornerstone of the country’s conventional military deterrent. The group includes six Royal Navy ships and a submarine, a US Navy destroyer, a frigate from the Netherlands and 32 aircraft, and is manned by 3,700 sailors, aviators and marines from the combined forces of the UK, US and the Netherlands.

HMS Queen Elizabeth is the largest surface vessel constructed in the UK. Taller than the Niagara Falls, her propellers generate the power of 50 high-speed trains.

Among the countries with which the UK carrier group will have engagements in the region are Singapore, South Korea and Japan, and these interactions will build on other efforts by Britain to enhance its profile in the Indo-Pacific. These efforts include seeking Asean dialogue partner status, negotiations to join the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) and trade talks with Australia, New Zealand and India.

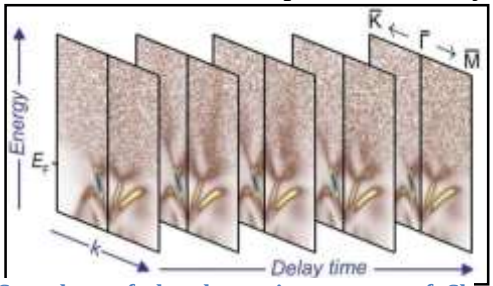
https://www.hindustantimes.com/india-news/uks-largest-warship-enters-indian-ocean-to-conduct-exercises-with-indian-navy-101626419172785.html

PHYS.ORG

Sat, 17 July 2021

Future information technologies: Topological materials for ultrafast spintronics

The laws of quantum physics rule the microcosm. They determine, for example, how easily electrons move through a crystal and thus whether the material is a metal, a semiconductor or an insulator. Quantum physics may lead to exotic properties in certain materials: In so-called topological insulators, only the electrons that can occupy some specific quantum states are free to move like massless particles on the surface, while this mobility is completely absent for electrons in the bulk. What's more, the conduction electrons in the "skin" of the material are necessarily spin polarized, and form robust, metallic surface states that could be utilized as channels in which to drive pure spin currents on femtosecond time scales (1 fs = 10^{-15} s).



Snapshots of the electronic structure of Sb acquired with femtosecond time-resolution. Note the changing spectral weight above the Fermi energy (EF). Credit: HZB/Nature Communication Physics

These properties open up exciting opportunities to develop new information technologies based on topological materials, such as ultrafast spintronics, by exploiting the spin of the electrons on their surfaces rather than the charge. In particular, optical excitation by femtosecond laser pulses in these materials represents a promising alternative to realize highly efficient, lossless transfer of spin information. Spintronic devices utilizing these properties have the potential of a superior performance, as they would allow to increase the speed of information transport up to frequencies a thousand times faster than in modern electronics.

However, many questions still need to be answered before spintronic devices can be developed. For example, the details of exactly how the bulk and surface electrons from a topological material respond to the external stimulus i.e., the laser pulse, and the degree of overlap in their collective behaviors on ultrashort time scales.

A team led by HZB physicist Dr. Jaime Sánchez-Barriga has now brought new insights into such mechanisms. The team, which has also established a Helmholtz-RSF Joint Research Group in collaboration with colleagues from Lomonosov State University, Moscow, examined single crystals of elemental antimony (Sb), previously suggested to be a topological material. "It is a good strategy to study interesting physics in a simple system, because that's where we can hope to understand the fundamental principles," Sánchez-Barriga explains. "The experimental verification of the topological property of this material required us to directly observe its electronic structure in a highly excited state with time, spin, energy and momentum resolutions, and in this way we accessed an unusual electron dynamics," adds Sánchez-Barriga.

The aim was to understand how fast excited electrons in the bulk and on the surface of Sb react to the external energy input, and to explore the mechanisms governing their response. "By controlling the time delay between the initial laser excitation and the second pulse that allows us to probe the electronic structure, we were able to build up a full time-resolved picture of how excited states leave and return to equilibrium on ultrafast time scales. The unique combination of time and spin-resolved capabilities also allowed us to directly probe the spin-polarization of excited states far out-of-equilibrium", says Dr. Oliver J. Clark.

The data show a 'kink' structure in transiently occupied energy-momentum dispersion of surface states, which can be interpreted as an increase in effective electron mass. The authors were able to show that this mass enhancement plays a decisive role in determining the complex interplay in the dynamical behaviors of electrons from the bulk and the surface, also depending on their spin, following the ultrafast optical excitation.

"Our research reveals which essential properties of this class of materials are the key to systematically control the relevant time scales in which lossless spin-polarized currents could be generated and manipulated," explains Sánchez-Barriga. These are important steps on the way to spintronic devices which based on topological materials possess advanced functionalities for ultrafast information processing.

More information: Oliver J. Clark et al, Observation of a giant mass enhancement in the ultrafast electron dynamics of a topological semimetal, *Communications Physics* (2021). DOI: 10.1038/s42005-021-00657-6

Journal information: *Communications Physics*

https://phys.org/news/2021-07-future-technologies-topological-materials-ultrafast.html

Sat, 17 July 2021

The paradox of a free-electron laser without the laser

A new way of producing coherent light in the ultra-violet spectral region, which points the way to developing brilliant table-top X-ray sources, has been produced in research led at the University of Strathclyde.

Credit: CC0 Public Domain

The scientists have developed a type of ultra-short wavelength coherent light source that does not require laser action to produce coherence. Common electron-beam based light sources, known as fourth-generation light sources, are based on the free-electron laser (FEL), which uses an undulator to convert electron beam energy into X-rays.

Coherent light sources are powerful tools that enable research in many areas of medicine, biology, material sciences, chemistry and physics.

This new way of producing coherent radiation could revolutionise light sources, as it would make them highly compact, essentially table-top size, and capable of producing ultra-short duration pulses of light, much shorter than can be produced easily by any other means.

Making ultraviolet and X-ray coherent light sources more widely available would transform the way science is done; a university could have one of the devices in a single room, on a table top, for a reasonable price.

The group is now planning a proof-of-principle experiment in the ultraviolet spectral range to demonstrate this new way of producing coherent light. If successful, it should dramatically accelerate the development of even shorter wavelength coherent sources based on the same principle. The Strathclyde group has set up a facility to investigate these types of sources: the Scottish Centre for the Application of Plasma-based Accelerators (SCAPA), which hosts one of the highest power lasers in the UK.

The new research has been published in *Scientific Reports*, one of the *Nature* family of journals.

Professor Dino Jaroszynski, of Strathclyde's Department of Physics, led the research. He says that "this work significantly advances the state-of-the-art of synchrotron sources by proposing a

new method of producing short-wavelength coherent radiation, using a short undulator and attosecond duration electron bunches."

"This is more compact and less demanding on the electron beam quality than free-electron lasers and could provide a paradigm shift in light sources, which would stimulate a new direction of research. It proposes to use bunch compression—as in chirped pulse amplification lasers—within the undulator to significantly enhance the radiation brightness."

"The new method presented would be of wide interest to a diverse community developing and using light sources."

In FELs, as in all lasers, the intensity of light is amplified by a feedback mechanism that locks the phases of individual radiators, which in this case are 'free' electrons. In the FEL, this is achieved by passing a high energy electron beam through the undulator, which is an array of alternating polarity magnets.

Light emitted from the electrons as they wiggle through the undulator creates a force called the ponderomotive force that bunches the electrons—some are slowed down, some are sped up, which causes bunching, similar to traffic on a motorway periodically slowing and speeding up.

Electrons passing through the undulator radiate incoherent light if they are uniformly distributed—for every electron that emits light, there is another electron that partially cancels out the light because they radiate out of phase. An analogy of this partial canceling out is rain on the sea: it produces many small ripples that partially cancel each other out, effectively quelling the waves—reducing their amplitude. In contrast, steady or pulsating wind will cause the waves to amplify through the mutual interaction of the wind with the sea.

In the FEL, electron bunching causes amplification of the light and the increase in its coherence, which usually takes a long time—thus very long undulators are required. In an X-ray FEL, the undulators can be more than a hundred meters long. The accelerators driving these X-ray FELs are kilometers long, which makes these devices very expensive and some of the largest instruments in the world.

However, using a free-electron laser to produce coherent radiation is not the only way; a "pre-bunched" beam or ultra-short electron bunch can also be used to achieve exactly the same coherence in a very short undulator that is less than a meter in length. As long as the electron bunch is shorter than the wavelength of the light produced by the undulator, it will automatically produce coherent light—all the light waves will add up or interfere constructively, which leads to very brilliant light with exactly the same properties of light from a laser.

The researchers have demonstrated theoretically that this can be achieved using a laser-plasma wakefield accelerator, which produces electron bunches that can have a length of a few tens of nanometres. They show that if these ultra-short bunches of high energy electrons pass through a short undulator, they can produce as may photons as a very expensive FEL can produce. Moreover, they have also shown that by producing an electron bunch that has an energy "chirp", they can ballistically compress the bunch to a very short duration inside the undulator, which provides a unique way of going to even shorter electron bunches and therefore produce even shorter wavelength light.

More information: Enrico Brunetti et al, Vacuum ultraviolet coherent undulator radiation from attosecond electron bunches, *Scientific Reports* (2021). DOI: 10.1038/s41598-021-93640-8

Journal information: *Nature* , *Scientific Reports*

https://phys.org/news/2021-07-paradox-free-electron-laser.html

PHYS.ORG

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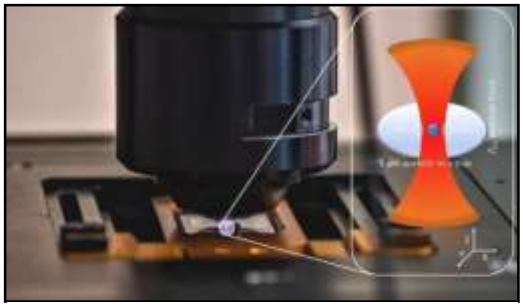
A simplified method for calibrating optical tweezers

Measurements of biomechanical properties inside living cells require minimally-invasive methods. Optical tweezers are particularly attractive as a tool. They use the momentum of light to trap and manipulate micro- or nanoscale particles. A team of researchers led by Prof. Dr. Cornelia Denz from the University of Münster (Germany) has now developed a simplified method to perform the necessary calibration of the optical tweezers in the system under investigation. Scientists from the University of Pavia in Italy were also involved. The results of the study have been published in the journal *Scientific Reports*.



A microparticle held with optical tweezers in the microscope. Inset: Illustration of the held particle (magnified); shown in red is the light of the infrared laser used. Credit: Pascal Runde

The calibration ensures that measurements of different samples and with different devices are comparable. One of the most promising techniques for calibrating optical tweezers in a viscoelastic medium is the so-called active-passive calibration. This involves determining the deformability of the sample under investigation and the force of the optical tweezers. The research team has now further improved this method so that the measurement time is reduced to just a few seconds. The optimized method thus offers the possibility of characterizing dynamic processes of living cells. These cannot be studied with longer measurements because the cells reorganize themselves during the measurement and change their properties. In addition, the shortening of the measurement time also helps to reduce the risk of damage to the biological samples due to light-induced heating.

In simplified terms, the underlying procedure to perform the calibration works as follows: The micro- or nanometer-sized particles are embedded in a viscoelastic sample held on the stage of a microscope. Rapid and precise nanometer-scale displacements of the specimen stage cause the optically trapped particle to oscillate. By measuring the refracted laser light, changes in the sample's position can be recorded, and in this way, conclusions can be drawn about its properties, such as stiffness. This is usually done sequentially at different oscillation frequencies. The team led by Cornelia Denz and Randhir Kumar, a doctoral student in the Münster research group, now performed the measurement at several frequencies simultaneously for a wide frequency range. This multi-frequency method leads to a shortened measurement time of a few seconds. The scientists used solutions of methyl cellulose in water at different concentrations as samples. These have a similar viscoelasticity to living cells.

Biomechanical properties such as stiffness, viscosity and viscoelasticity of living cells and tissues play a crucial role in many vital cellular functions such as cell division, cell migration, cell differentiation and tissue patterning. These properties of living cells could also serve as indicators of disease progression. For example, the onset and development of cancer is typically accompanied by changes in cell stiffness, viscosity, and viscoelasticity.

More information: Randhir Kumar et al, Multi-frequency passive and active microrheology with optical tweezers, *Scientific Reports* (2021). DOI: 10.1038/s41598-021-93130-x

Journal information: *Scientific Reports*

https://phys.org/news/2021-07-method-calibrating-optical-tweezers.html

The Indian EXPRESS

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New study suggests Covid-19 virus piggybacks only black carbon emission

The study, published in the journal ELSEVIER, is based on data collected from Delhi, from September to December 2020, and the 24-hour average of particulate matter (PM) 2.5 and black carbon (BC)

New Delhi: A new study conducted by Pune-based Indian Institute of Tropical Meteorology suggests that COVID-19 virus piggybacks only black carbon emitted during biomass burning and not all PM2.5 particles.

The study, published in the journal ELSEVIER, is based on data collected from Delhi, from September to December 2020, and the 24-hour average of particulate matter (PM) 2.5 and black carbon (BC).

PM2.5 refers to fine particles which penetrate deep into the body and fuel inflammation in the lungs and respiratory tract, leading to the risk of having cardiovascular and respiratory problems, including a weak immune system.

The surge in black carbon emission is directly related to the additional contribution of stubble burning-induced PM2.5 concentration transported externally from stubble burning regions, the study said.

PM2.5 consists of black carbon, often called soot, and polycyclic aromatic hydrocarbons (PAHs), among others.

Almost 40 per cent of BC emissions are attributed to open biomass burning, 40 per cent to fossil fuel burning, and the remaining 20 per cent to biofuel burning.

Several studies have linked air pollution to higher COVID-19 cases. A study carried out in Italy correlated the incidence of coronavirus cases with PM2.5 levels, the authors — Aditi Rathod and Gufran Beig — said.

"However, in this paper, we argue that not all PM2.5 particles carry the virus. It is only black carbon which is emitted during biomass burning which carries the virus," Beig, senior scientist and founder-project director, SAFAR, said.

"Delhi was worst affected by the novel coronavirus infection. However, when the situation was returning to normal after about six months with minimum fatalities, it suddenly encountered a reversal with a 10-fold increase in infection counts, coinciding with the onset of the stubble burning period in neighbouring states," the study stated.

The aged biomass BC particles tend to aggregate and react with other compounds to grow in size, providing temporary habitat to viruses leading to the rapid increase in COVID-19 cases, which declined after the crop burning stopped.

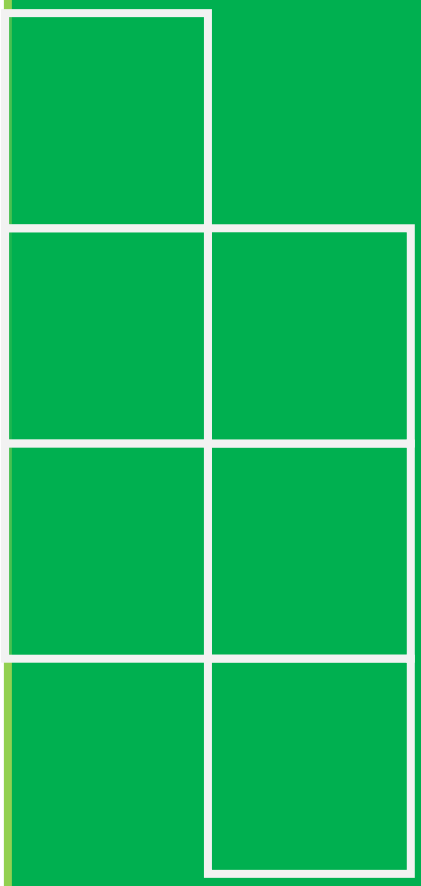
The researchers found that the concentration of black carbon "directly corresponds to the speed at which infections spread after the onset of winter and stubble burning period and then reduced with a declining trend in BC with reduction in stubble fire counts".

The surge in black carbon emission is directly related to the additional contribution of stubble burning-induced PM2.5 concentration transported externally from stubble burning regions, the study said.

In another study conducted earlier, Beig and his co-authors had said that people living in the national capital and in states such as Maharashtra, Uttar Pradesh, Madhya Pradesh and Tamil Nadu are more likely to contract COVID-19 due to prolonged exposure to high concentration of PM 2.5.

"Higher number of COVID-19 cases have been found in places like Maharashtra, Delhi, Rajasthan, Tamil Nadu, Uttar Pradesh, Andhra Pradesh, Telangana, Gujarat, Bihar, Karnataka, Odisha and Madhya Pradesh with prolonged exposure to high concentration of PM2.5," the report had said.

https://indianexpress.com/article/india/new-study-suggests-covid-19-virus-piggybacks-only-black-carbon-emission-7410432/



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