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# समाचार पत्रों से चयित अंश Newspapers Clippings

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**Press Information Bureau**  
**Government of India**

**Ministry of Defence**

*Tue, 29 Nov 2022*

## **India has Emerged as a Net Security Provider in Indo-Pacific, says Raksha Mantri at Multi-Agency HADR Exercise ‘Samanvay 2022’ in Agra**

**Representatives from ASEAN nations & national & regional stakeholders involved in disaster management attending the exercise**

**Shri Rajnath Singh calls for sharing of information, resources & equipment to deal with future natural disasters**

India has emerged as a regional power and net security provider in the Indo-Pacific as its capacity to provide humanitarian assistance and disaster relief to its citizens as well as regional partners has grown in recent years. This was stated by Raksha Mantri Shri Rajnath Singh at the multi-agency Humanitarian Assistance and Disaster Relief (HADR) exercise ‘Samanvay 2022’ in Agra, Uttar Pradesh today. Shri Rajnath Singh asserted that under SAGAR (Security and Growth for All in the Region) envisioned by Prime Minister Shri Narendra Modi, India is cooperating with multiple partners to ensure economic growth & security in the region while tackling threats such as natural disasters. “We have strengthened multilateral partnerships through engagement via regional mechanisms. This has improved interoperability enabling faster response in crisis situations,” he said. The Raksha Mantri pointed out that Asia, particularly the Indo-Pacific region, is vulnerable to the impact of climate change, expressing confidence that the participation of national stakeholders with friendly nations in the ‘Samanvay 2022’ will further enhance disaster management capabilities.

The Raksha Mantri highlighted that prediction of natural disasters has to be accompanied by dissemination of information to a larger population and shifting people to safer locations, which requires an empowered machinery. As nations have different capacities, collaborative preparation to deal with disasters is required, he stressed. Shri Rajnath Singh called upon the nations to come together in dealing with natural disasters by sharing resources, equipment and training. In HADR, there is a need to share information for regional cooperation and best practices, he added. Shri Rajnath Singh emphasised that harnessing diverse capabilities and using expertise and new technologies enable us to decrease the impact of natural disasters. Noting the

increasing frequency of climate-related disasters, he stated that it is essential for HADR teams of different nations to come together on a single platform.

Elaborating on India's robust HADR mechanism which has effectively provided relief both in India and other nations, the Raksha Mantri said the 'Make in India' initiative of the Government has strengthened this structure. India's approach after the formulation of the National Disaster Management Policy has shifted focus from a relief-centric approach to a 'multi-pronged' approach including prevention, preparedness, mitigation, response, relief and rehabilitation, he added. Shri Rajnath Singh applauded the contribution of the Indian Armed Forces assistance to civil administration during HADR operations and their role in important HADR missions in the Indo-Pacific region, such as Operation Rahat in 2015 and relief operations in Sri Lanka, Nepal, Indonesia, Mozambique, Maldives and Madagascar. He also commended the role of National Disaster Response Force and State Disaster Response Forces during relief operations. "Armed forces, Central Armed Police Forces, District Revenue Administration, State Police and capable NGOs have come together to transform India's capacity to recover from crises and tackle them in the future," he said.

The Raksha Mantri hailed 'Samanvay 2022' for bringing together various agencies involved in HADR activities in order to formulate a joint approach to tackle future natural disasters. He emphasised that strengthening the disaster relief mechanism is essential for overall development. He expressed gratitude to the representatives of friendly nations for their participation and complimented the Indian Air Force for organising the exercise. The exercise is being conducted by the Indian Air Force at Agra, Air Force Station from November 28-30, 2022. Representatives from ASEAN nations and various national and regional stakeholders involved in Disaster Management including Civil Administration, Armed Forces, National Disaster Management Authority (NDMA), National Institute of Disaster Management (NIDM), National Disaster Response Force (NDRF), Defence Research and Development Organisation (DRDO), Border Roads Organisation (BRO), India Meteorological Department (IMD), National Remote Sensing Centre (NRSC) and Indian National Centre for Ocean Information Services (INCOIS) are attending the exercise.

Earlier, Shri Rajnath Singh attended the capability demonstration events during the exercise, which included an aerial display featuring SU-30 aircraft, transport aircraft and helicopters. He also visited the static display of HADR assets of various organisations, which showcased India's growing disaster management capabilities. The attendees were enthralled by a demonstration by the Akashganga team. Chief of Defence Staff General Anil Chauhan, Chief of Air Staff Air Chief Marshal VR Chaudhari and other senior civil & military officials were present on the occasion.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1879788>

## **The Tribune**

*Tue, 29 Nov 2022*

### **India Net Security Provider in Indo-Pacific**

India has emerged as a regional power and net security provider in the Indo-Pacific with its capacity to provide humanitarian assistance and disaster relief to its own citizens as well as

regional partners, said Defence Minister Rajnath Singh said today. He stated this during multi-agency Humanitarian Assistance and Disaster Relief (HADR) exercise 'Samanvay 2022' in Agra. A few countries from the 10-nation ASEAN block are part of the exercise. "The interoperability is better and faster in crisis situations. Asia, particularly the Indo-Pacific region, is vulnerable to the impact of climate change," said Rajnath, expressing confidence that the participation of national stakeholders with friendly nations in 'Samanvay 2022' would further enhance disaster management capabilities.

Rajnath hailed 'Samanvay 2022' for bringing together various agencies involved in relief activities in order to formulate a joint approach to tackle future natural disasters. He also witnessed an aerial display featuring SU-30 aircraft, transport aircraft and helicopters.

<https://www.tribuneindia.com/news/nation/rajnath-india-net-security-provider-in-indo-pacific-456101>

## नवभारत टाइम्स

बुधवार, 30 नवंबर 2022

### वॉर गेम, सर्च एंड रेस्क्यू, अनआर्मड कॉम्बेट... औली में एक-दूसरे को क्या सिखा रहीं भारत और अमेरिकी की सेनाएं

उत्तराखंड के औली में 9544 फीट की ऊंचाई पर मंगलवार रात से भारत और अमेरिकी सैनिक उग्रवादियों से नागरिकों को छुड़ाकर उन्हें सुरक्षित जगह पहुंचाया। दुश्मन को जंगल में ट्रैप में फंसाकर घेरा, साथ ही जरूरत पड़ने पर अनआर्मड कॉम्बेट (गुत्थम गुत्था की लड़ाई) में दुश्मन को चित किया। यह सब हो रहा है युद्धाभ्यास में। भारत और अमेरिकी सेना के बीच यहां चल रहे युद्धाभ्यास में वॉर गेमिंग की गई और फिर भारत और अमेरिकी सैनिकों ने कई तरह की ट्रेनिंग साथ की। करीब 12 दिनों की एक्सरसाइज के बाद मंगलवार रात से इसका वेलिडेशन शुरू हुआ है जो दो दिन चलेगा। किसी भी एक्सरसाइज में वेलिडेशन का मतलब होता है कि एक्सरसाइज में जो ट्रेनिंग ली, जो प्लानिंग की उसे परखना।

युद्धाभ्यास में भारतीय और अमेरिकी सैनिकों ने कई सिचुएशन को ध्यान में रखकर एक्सरसाइज की। इसमें प्राकृतिक आपदा की स्थिति में कैसे सर्च और रेस्क्यू ऑपरेशन करना है, किसी देश में उग्रवादियों ने कब्जा कर लिया है और वह हाई एल्टीट्यूड एरिया में हैं तो उग्रवादियों पर कैसे काबू पाना है, कैसे शांति स्थापित करनी है और बंधकों को छुड़ाना है, यह सब शामिल रहा। मंगलवार रात से इन्हीं सिचुएशन पर भारतीय और अमेरिकी सैनिकों की इंटीग्रेटेड टीम को परखा जा रहा है। एक्सरसाइज कमांडर ब्रिगेडियर पंकज वर्मा ने कहा कि औली में हो रही यह जॉइंट एक्सरसाइज युद्धाभ्यास का 18 वां संस्करण है। इसमें हमने अमेरिकी सेना के साथ इंटीग्रेटेड बैटल ग्रुप की यूएन चार्टर के तहत एक्सरसाइज की। दोनों देशों के सैनिकों ने एक दूसरे की बेस्ट प्रैक्टिस को साझा किया। दोनों देशों के सैनिकों ने एक दूसरे से काफी कुछ

नया भी सीखा। इस दौरान कॉम्बेट मेडिकल, कॉम्बेट इंजीनियरिंग, अनआर्म्ड कॉम्बेट, हर किस्म की चीजों को साझा किया गया।

### **यह युद्धाभ्यास इतना खास क्यों है?**

औली में हो रहा यह युद्धाभ्यास इस लिहाज से भी खास है कि पहली बार भारत और अमेरिकी सैनिक हाई एल्टीट्यूडमें युद्धाभ्यास कर रहे हैं। पहली बार भारतीय सेना ने जॉइंट मिलिट्री एक्सरसाइज के लिए हाई एल्टीट्यूडमें फॉरेन ट्रेनिंग नोड (FTN) बनाया है। भारतीय सेना को हाई एल्टीट्यूडमें लड़ाई लड़ने का अनुभव है। हाई एल्टीट्यूडमें लड़ाई लड़ने, लॉजिस्टिक और मेडिकल की जो क्षमता भारतीय सेना के पास है वह किसी दूसरे देश के पास नहीं है।

भारतीय सेना पहले से ही हाईएल्टीट्यूडमें ट्रेनिंग करते आई है लेकिन पहली बार हाई एल्टीट्यूडमें फॉरेन ट्रेनिंग नोड बना है। युद्धाभ्यास में शामिल एक अमेरिकी सैनिक ने कहा कि हाई एल्टीट्यूडमें एक्सरसाइज का यह मेरा पहला अनुभव है। हाई एल्टीट्यूडके अपनी चुनौतियां हैं क्योंकि यहां दुश्मन के साथ ही माउंटेन भी चुनौती देते हैं। यहां चलने में ही सांस फूलने लगती है। सामान्य इलाके और हाई एल्टीट्यूडमें कोई भी ऑपरेशन करने में बहुत फर्क है। इस एक्सरसाइज से हमने काफी कुछ सीखा है!

<https://navbharattimes.indiatimes.com/india/india-us-yudh-abhyas-2022-indian-army-and-us-army-joint-military-exercise-in-auli-uttarakhand/articleshow/95870012.cms>

## **THE ECONOMIC TIMES**

*Tue, 29 Nov 2022*

### **India, US Armies Hold Exercises Close to China Border**

Indian and U.S. troops on Tuesday participated in a high-altitude training exercise in a cold, mountainous terrain near India's disputed border with China, at a time both countries are trying to manage rising tensions with Beijing. During the exercise, Indian soldiers were dropped from helicopters to flush out gunmen from a house in a demonstration of unarmed combat skills. Other drills involved sniffer dogs and unmanned bomb-disposing vehicles, and trained kites were deployed to destroy small enemy drones.

"Overall, it has been a great learning experience. There has been sharing of best practices between both the armies," said Brig. Pankaj Verma of the Indian Army. The annual drills took place around Auli, a hill station in the northern state of Uttarakhand. The U.S. troops came from the 2nd Brigade of the 11th Airborne Division, and their Indian counterparts were members of the army's Assam Regiment. India's Defense Ministry has said the exercise will focus on surveillance, mountain-warfare skills, casualty evacuation and combat medical aid in adverse terrain and climatic conditions. It will also include humanitarian assistance, disaster relief, and operations related to peacekeeping, it said. The "Yudh Abhyas" exercise has alternated between the U.S. and India since it began in the early 2000s. It was held in Alaska last year. Earlier editions had taken place elsewhere in northern India, but this year's exercise is being held only

about 100 kilometers (62 miles) from the Line of Actual Control, a disputed border that separates Chinese and Indian-held territories.

India and China fought a war along the border in 1962. The latest dispute flared in June 2020, when at least 20 Indian soldiers and four Chinese troops were killed in a brawl in the Ladakh region. It led to the two countries stationing tens of thousands of soldiers backed by artillery, tanks and fighter jets along the Line of Actual Control. Some Indian and Chinese soldiers have pulled back from a key friction point but tensions between the two countries have persisted. The exercise also reflects the strengthening defense ties between India and the U.S. They have steadily ramped up their military relationship and signed a string of defense deals and deepened military cooperation. In recent years, relations have been driven by a convergence of interests to counter China.

<https://economictimes.indiatimes.com/news/defence/former-pakistan-army-chief-javed-bajwa-blames-politicians-for-1971-war-debacle/articleshow/95865144.cms>



*Tue, 29 Nov 2022*

## **Five Bilateral Army Exercises Under Way, Including ‘Yudh Abhyas’ in Uttarakhand**

The Indian Army is currently engaged in bilateral exercises with five countries under way both inside and outside the country meant to improve interoperability. The 18th edition of India-U.S. Army exercise ‘Yudh Abhyas’ which is under way at Auli in Uttarakhand, about 100 km from the Line of Actual Control (LAC), has entered the validation phase and is set to conclude later this week. Other ongoing exercises are ‘Ex Austra Hind’ with Australia at Mahajan field firing ranges in Rajasthan from November 28 to December 11 and ‘Ex Agni Warrior’ with Singapore at Deolali from November 13 to December 3. The outgoing exercises are ‘Ex Harimau Shakti’ with Malaysia from November 28 to December 12 and ‘Ex Garuda Shakti’ with Indonesia, between Special Forces began on November 21.

The Indian Army is currently engaged in bilateral exercises with five countries under way both inside and outside the country meant to improve interoperability. The 18th edition of India-U.S. Army exercise ‘Yudh Abhyas’ which is under way at Auli in Uttarakhand, about 100 km from the Line of Actual Control (LAC), has entered the validation phase and is set to conclude later this week. Other ongoing exercises are ‘Ex Austra Hind’ with Australia at Mahajan field firing ranges in Rajasthan from November 28 to December 11 and ‘Ex Agni Warrior’ with Singapore at Deolali from November 13 to December 3. The outgoing exercises are ‘Ex Harimau Shakti’ with Malaysia from November 28 to December 12 and ‘Ex Garuda Shakti’ with Indonesia, between Special Forces began on November 21. ‘Ex KazInd’ with Kazakhstan is scheduled in mid-December.

“Yudh Abhyas reinforces our commitment to the Indo-Pacific region and improves interoperability with our Indian Army partners,” U.S. Army Pacific, the Army service component command to the Indo-Pacific Command. This is the first exercise to be held at the newly set up foreign training node at Auli in Uttarakhand located at an altitude of 9,200 feet. Indian Army soldiers from 9 Assam Regiment and U.S. Army soldiers of 40th Cavalry Regiment

under 2nd Brigade of the 11th Airborne Division are taking part in the exercise. The previous edition of the exercise was held at Alaska, U.S., in October 2021. In an interesting development, U.S. Army Pacific said that in full view of Nanda Devi in the tallest mountain range in the world, Capt. Cerruti, Lt. Russell, Lt. Brown and Lt. Hack became the first four U.S. Army Officers “to be promoted in the Himalayas” during ‘Ex Yudh Abhyas’.

In a sign of increasing commonality of platforms at various levels, Indian soldiers used Sig Saur assault rifles procured from U.S. while India Air Force deployed a Chinook heavy-lift helicopter on a Combat Enabling Operation as part of the exercise. Indian Army showcased in action how it is trained birds, kites, to counter the increasing threat of drones. The training schedule focuses on employment of an Integrated Battle Group (IBG) under Chapter VII of the United Nations Mandate and will include all operations related to peace keeping and peace enforcement, the Army said in addition to Humanitarian Assistance and Disaster Relief (HADR) operations. Soldiers attended expert demonstrations and lectures on avalanche rescue, counter-IED operations, HADR and a route opening demonstration. “The scope of the field training exercise includes validation of IBGs, force multipliers, establishment and functioning of surveillance grids, validation of operational logistics, mountain warfare skills, casualty evacuation and combat medical aid in adverse terrain and climatic conditions,” the Army said in a statement.

### **Other exercises**

With Australia, this is the first exercise in the series of ‘Austra-Hind’ with participation of all arms and services contingent from both armies, the Army said. “The exercise will be a yearly event that will be conducted alternatively in India and Australia,” it stated. The Australian Army contingent comprising soldiers from 13th Brigade of 2nd Division is exercising with troops from the Indian Army’s Dogra Regiment. The aim of the exercise is to build positive military relations, imbibe each other’s best practices and promote the ability to operate together while undertaking multi-domain operations in semi-desert terrain under a U.N. peace enforcement mandate,” the Army said. Training on new generation equipment and specialist weapons, including snipers, surveillance and communication equipment, to achieve a “high degree of situational awareness” apart from casualty management, casualty evacuation and planning logistics at Battalion and Company level are also planned. Vice-Chief of Indian Army Lt. Gen. B. S. Raju reviewed ‘Ex Agni Warrior’ with Singapore at Deolali on Monday. “The Vice-Chief witnessed the live firing and appreciated the participating troops for professional acumen and expertise,” the Army said.

‘Exercise Harimau Shakti -2022’ is under way at Pulai, Kluang, Malaysia, and the annual training event has been ongoing since 2012. Troops of Garhwal Rifles of Indian Army are exercising with the Royal Malay Regiment of the Malaysian Army to share experiences gained during operations in order to “enhance inter-operability in planning and execution of various operations in jungle terrain.” “The scope of this exercise involves a command planning exercise at the Battalion level and company level field training exercise on sub-conventional operations in jungle terrain,” the Army said. In Indonesia, the 8th edition of Garuda Shakti is under way at Sangga Buana training area at Karawang aimed at enhancing understanding, cooperation and interoperability between the Special Forces of both armies.

The scope of the 13 day joint exercise includes orientation to advance special forces skills, sharing of information on weapon, equipment, innovations, tactics, techniques and procedures and lessons learnt from various operations undertaken, Special Forces Operations in Jungle



terrain, strikes on terrorist camps and a validation exercise integrating basic and advance special forces skills. The joint exercise will facilitate both armies to share their wide experiences and combat experience on “countering terrorist operations, regional security operations and peace keeping operations in an international environment,” the Army added.

<https://www.thehindu.com/news/national/five-bilateral-army-exercises-under-way-including-yudh-abhyas-in-uttarakhand/article66201755.ece>

# THE ECONOMIC TIMES

*Tue, 29 Nov 2022*

## **Indian Army Trains Kites to Destroy Enemy Drones**

Indian Army troops are using trained Kites to prey on enemy drones in a first-of-its-kind usage of these birds. Indian Army is using trained Kites along with dogs for military operations, Army officials said. Such a capability can help the security forces to tackle the menace of drones coming from across the border to Indian areas in Punjab and Jammu and Kashmir. Several cases have come to light where drones coming from Pakistside dropped consignment of drugs, guns and money in Jammu and Kashmir and Punjab. Recently on November 24, Jammu and Kashmir Police recovered a consignment of weapons and Indian currency that were dropped by a Pakistani drone in the Samba district of Jammu. The Indian Army demonstrated the use of kites to prey on enemy drones during the ongoing joint training exercise Yuddh Abhyas in Auli, Uttarakhand.

Meanwhile, the 18th edition of the Indo-US joint training exercise "Yudh Abhyas 22" commenced in Uttarakhand's Auli on Saturday. Exercise Yudh Abhyas is conducted annually between India and US with the aim of exchanging best practices, Tactics, Techniques and Procedures between the Armies of the two nations. The previous edition of the exercise was conducted at Joint Base Elmendorf Richardson, Alaska (US) in October 2021. US Army soldiers of the 2nd Brigade of the 11th Airborne Division and Indian Army soldiers from the ASSAM Regiment are participating in the exercise. The training schedule focuses on the employment of an integrated battle group under Chapter VII of the UN Mandate.

The scope of the Field Training Exercise includes the validation of integrated battle groups, force multipliers, establishment and functioning of surveillance grids, validation of operational logistics, mountain warfare skills, casualty evacuation and combat medical aid in adverse terrain and climatic conditions. According to the Army, the joint exercise focuses on deploying an infantry battalion group in peacekeeping and disaster relief operations under the mandate of the US. The Yudh Abhyas is a 15-day-long exercise that will focus on high altitude and extremely cold climate warfare.

<https://economictimes.indiatimes.com/news/defence/former-pakistan-army-chief-javed-bajwa-blames-politicians-for-1971-war-debacle/articleshow/95865144.cms>

Tue, 29 Nov 2022

## Next Generation Modern and Articulated E-Warfare for Army

*By Dr Nishakant Ojha*

Realising the irrationality, miscalculation, or some bad intention or unanticipated agenda that may lead an alarm or trigger to launch an attack, some strategists have always been unwilling to place full confidence in the stability of deterrence. It is naturally understood that measures to enable a defence against an attack when it is launched, either to intercept enemy weapons before they can detonate on target or to blunt the effects of detonations that do occur. The proliferation of weapons of mass destruction (WMD) and their delivery systems could have incalculable consequences for national, regional and global security. The emerging effects of these types of weapons i.e (CBRN) – which include nuclear devices, radiological material, biological pathogens and chemical substances – are some of the biggest threats but the most important aspects of WMD role is the medium by which it can play a disaster role needs to be analysed & on priority.

The first three decades of the Space Age, demonstrate that the superpowers have found it technically and economically attractive to use space only for the five so called traditional missions of reconnaissance and surveillance, communication, for the Defence and other strategic purposes briefly, before passing on to the host of new technologies that might in the future greatly lengthen this list of military space missions. With respect to the Reconnaissance and Surveillance -Electromagnetic radiation emitted or reflected from terrestrial objects can be detected from space in any of the three wavelength bands to which the intervening atmosphere is transparent, namely, the visible band, certain infrared bands, and the microwave radio band. It follows that these are the bands used for military surveillance.

Further in the realm of nuclear operations; space is used to detect missile launches and nuclear detonations. Missile warning data permit the safe escape of bombers, tankers, cruise missile carriers, airborne command posts, and, for launch-under-attack (LUA), intercontinental ballistic missiles (ICBMs).. But the most important use of missile launch and nuclear detonation data would probably be to give decision-makers a clear assessment of what happened, information crucial to responsible action and, under the chaotic circumstances, hard to come by otherwise.

### **Terrestrial Communications**

With respect to the Communications there are only two ways to communicate information over long distances within seconds: by landline (including transoceanic cable) and by radio. Because the earth is round, line-of-sight radio contact between widely separated points on the earth's surface is impossible. One way to propagate radio waves over the horizon is to bounce them off the ionosphere; shortwave (HF, high frequency) radio propagation in this manner. But ionospheric reflection is unreliable and cannot support large rates of message traffic. Long distance communication companies have long placed microwave radio relays on towers and mountaintops for over-the-horizon relay. The communications satellite is just an extension of the relay principle to higher altitudes and consequently longer relay distances.

## **Quantum Technologies**

If need to compress on the Quantum embedded Technologies Solutions vulnerabilities & misuse by Bad Actors that how the quantum terrorists could bring the quantum internet to its knees almost instantly and without revealing their identity. More worrying still is that there is no obvious way to counter this new kind of attack. How a malicious actor might destroy this cloud and the information it contains. One approach would be to simply break the entanglement, which is a famously fragile form of existence. But this would be something of a sledgehammer—a classical attack on a quantum system. Basically interest falls to know how much more subtle kind of quantum attack. This kind of attack would involve injecting some random information that becomes entangled with the rest, thereby making the original information impossible to retrieve from the mix. By itself this does not work. A lone-wolf attacker cannot overwhelm the quantum state with random information.

But if quantum terrorists work in unison, an entirely different scenario unfolds. Also if several attackers inject their quantum information into the network at the same instant, they can disrupt the global quantum state. In that case the initial state of the system cannot be retrieved, even in principle. Now the question how many Bad Actors wanted to happen this, the shocking conclusion is that it requires only three or more quantum terrorists working in unison. With respect to the Next Generation Weapons of mass destruction and weapons of mass effects terrorism. There has been widespread concern of using nuclear, biological, chemical, or radiological weapons – or what usually are labelled weapons of mass destruction (WMD). There also has been concern about another catastrophic terrorist attack entailing the non-traditional use of conventional means. In the coming times a country has to be prepared for this.

Against this background, the Advanced Systems and Concepts Office (ASCO) of the Defence Threat Reduction Agency (DTRA) asked Science Applications International Corporation (SAIC) to analyze the dimensions of possible “Next Generation WMD and WME Terrorism.” Particular focus was to be placed on the potential groups that could carry out such attacks, what new groups or other entities might be attracted to the use of WMD or WME over the next 3-15 years, and what motivations might lead different terrorist groups or other entities to escalate to WMD violence.

## **Network Attacks**

For Mass Effects Modern society is becoming increasingly penetrated by networking technology. From the networking of physical objects to the networking of financial dealings, the Internet has become a societal and global command and control system, the Internet also has resulted in a new cyber-space battlefield with new targets, specific vulnerabilities, and a myriad of channels of attack. Attacks across the Internet taking advantage of those channels of attack are labelled here “network attacks.” One possible purpose of such attacks would be to damage or destroy “things” – and for that reason, it warrants brief inclusion here as part of next generation WMD or WME terrorism.

For next generation WMD or WME terrorism, two issues are of particular importance: the spectrum of potential attacks that are conceivable; and the range of potential attackers. Consider each dimension in turn. With regard to the spectrum of potential attacks, as set out in the Lukasik analysis, a useful typology focuses respectively on economy-oriented attacks and people-oriented attacks. Depending on the specific network-based attack, the impact would vary. Some of these attacks would not fall within the category of mass effects attacks directly though they

might facilitate later, larger-scale attacks. Thus, a network based attack aimed at reputation assassination would have a physically limited impact but could be quite important politically. But network attacks could well have immediate mass effects in terms of loss of life, physical destruction or disruption, and other metrics, e.g., attacks on critical energy or oil infrastructure. Attacks that leveraged interdependencies across many economic sectors would be among the most damaging of the latter attacks.

## **Conclusion**

The dynamics of Space, Quantum & viz-a-viz Next Generation WMD and WME Bad Actors — we can conclude that over the next 3-15 years, the number of terrorist entities should be expected to continue to increase, continuing an historic pattern of exponential growth in terrorist groups, leaders, and followers. Multiple geopolitical trends – many tied to the impact of globalization on individuals, groups, and nations – all comprise drivers for this emergence of more extremist groups. Many of these groups will be characterized by religious extremism; but there also will be many other motivating ideologies. The Internet increasingly will be a powerful and multi-faceted terrorist enabler, including WMD and WME terrorism. In parallel, technological trends point toward the capability to do extreme violence becoming accessible to smaller and smaller entities, including individuals. Though direct production of nuclear weapons probably exceeds the technical capabilities of all but states, terrorist groups could well obtain nuclear weapons by purchase, theft, or gift. Ties between terrorist groups and traditional criminal organizations are likely to make it easier for such groups to gain access to – and to transport – WMD. With regard to specific groups, the next generation WMD threat will continue to be most characterized by the threat that the Bad Actors will successfully acquire and use any one of chemical, biological, radiological, or nuclear weapons. Aborted or failed attempts to use biological and radiological weapons already have occurred. The repeated use of chlorine-explosive mixtures by them in many countries is no longer simply setting an isolated precedent but instead institutionalizing a new mode of terrorist attack. With regard to nuclear weapons, barring some unexpected reversal, the debate within the Jihadist community about the legitimacy and justification of WMD.

<https://www.financialexpress.com/defence/next-generation-modern-and-articulated-e-warfare-for-army/2895675/>

# **ThePrint**

*Wed, 30 Nov 2022*

## **India, France Discuss Defence Cooperation, Explore Opportunities Under Atmanirbhar Bharat**

French Directorate General for Armaments and Director for International Development Gen Gael Diaz de Tuesta today held a meeting with Chief of Defence Staff General Anil Chauhan. During the meeting, the two sides discussed ongoing defence cooperation and further opportunities under the Atmanirbhar Bharat policy. Sharing details regarding the meeting, Headquarters Integrated Defence Staff tweeted, “Gen Gael Diaz de Tuesta, Director for International Development, Directorate General for Armaments (DGA), #France called on Gen Anil Chauhan, Chief of the Defence Staff #CDS today to discuss ongoing defence collaboration

and explore further opportunities under #AtmanirbharBharat.” Last week, French Minister for the Armed Forces Sebastien Lecornu was in India. During his visit, he held the Indo-French annual defence dialogue with Defence Minister Rajnath Singh on November 28. During the annual defence dialogue in New Delhi, Singh and Lecornu discussed various bilateral, regional and defence industrial cooperation issues.

Rajnath Singh in a tweet said, “Had warm and fruitful discussions with the Defence Minister of France, Mr Sebastien Lecornu during the fourth India-France Annual Defence Dialogue in New Delhi today. A wide range of bilateral, regional & defence industrial cooperation issues was discussed during the dialogue.” During the meeting, the two leaders discussed bilateral, regional, defence and defence industrial cooperation issues, according to a press release issued by the Ministry of Defence. Singh and Lecornu reviewed the defence cooperation and discussed ways to strengthen maritime cooperation. Rajnath Singh and Sebastien Lecornu reviewed the ongoing military-to-military cooperation which has increased substantially in recent years. They discussed means to strengthen maritime cooperation and increase the scope and complexity of bilateral exercises. They noted with satisfaction that India and France successfully conducted their bilateral Air Exercise ‘Garuda’ in Jodhpur.

During the dialogue, Rajnath Singh and Sebastien Lecornu discussed defence industrial cooperation with a focus on ‘Make in India’. The two leaders spoke about future cooperation and potential co-production opportunities. Singh and Lecornu agreed that the technical groups should meet early next year and take forward the key cooperation issues. External Affairs Minister S Jaishankar held a meeting with French Minister of Armed Forces Sebastien Lecornu. The two leaders discussed contemporary strategic developments. S Jaishankar tweeted, “Welcomed French Minister of Armed Forces @SebLecornu to MEA this evening. A wide-ranging discussion on contemporary strategic developments.” On Monday, Lecornu also held a meeting with National Security Adviser Ajit Doval. Emmanuel Lenain, France’s ambassador to India in a tweet said that Doval and Lecornu shared close assessments of major global and regional security issues and agreed to intensify counter-terrorism cooperation.

<https://theprint.in/world/india-france-discuss-defence-cooperation-explore-opportunities-under-atmanirbhar-bharat/1241878/>



*Tue, 29 Nov 2022*

## **NSA Ajit Doval Meets French Minister in Delhi, Holds Talks on Security**

National Security Advisor Ajit Doval on Tuesday met French Defence Minister Sebastien Lecornu in New Delhi and held talks on a range of issues, including global, regional, and bilateral security-related subjects. "Emphasis was laid on R&D and manufacturing in line with requirements of future wars," a statement read.

Besides, NSA Doval and French Minister Lecornu highlighted the need for an action-oriented and time-bound approach in line with the visions of Prime Minister Narendra Modi and French President Emmanuel Macron. "Special attention would be paid to cooperation in security-related

aspects such as space, cyber, and maritime to ensure peace and stability in the Indo-Pacific," the statement added. A day earlier, French Minister Lecornu visited India's first indigenous aircraft carrier, INS Vikrant.

<https://www.indiatoday.in/amp/india/story/nsa-ajit-doval-meets-french-minister-in-delhi-holds-talks-on-security-2303373-2022-11-29>



*Wed, 30 Nov 2022*

## **India Defence Exports Cross Rs 7,000 Crore till November, Pending Major Deals to Take Figures Higher**

India has achieved defence exports over Rs 7,000 crore till November 1 so far, and is looking at reaching a target upwards of Rs 15,000 crore by the end of this fiscal, showed official data accessed by News18. According to the data, India exported defence items worth Rs 7,034.84 crore till November 1 this year. Sources said some major defence deals were expected to be concluded towards the end of this year and early 2023, taking export figures higher. In 2021-2022, India's defence exports were worth Rs 12,814.54 crore. The figure marks a significant growth from 2014-15 when the figures were just Rs 1,940.64 crore. India's private sector has a majority share in the overall defence exports. The country has set a target of annual defence exports worth Rs 35,000 crore by 2025.

According to a report by Stockholm International Peace Research Institute (SIPRI), India is ranked 23 in a list of the 25 largest exporters of major arms and has had a 0.2 per cent share of the global arms exports between 2017 and 2021 – up from 0.1 per cent in the years before that.

### **Significant Export Orders**

India has inked significant defence export deals this year, including the big-ticket \$375-million contract with the Philippines for the BrahMos supersonic cruise missile; a contract to export the advanced version of advanced light helicopter (ALH Mark III) to Mauritius; and an order of \$155 million for artillery guns bagged by private defence firm Kalyani Strategic Systems from an unspecified country. India is pitching its indigenously-made light combat aircraft Tejas to African and Southeast Asian markets for export. According to the defence ministry, India exports personal protective equipment, offshore patrol vessels, ALH helicopter, SU avionics, Bharati Radio, coastal surveillance systems, Kavach MoD II Launcher and FCS, spares for radar, electronic system and light engineering mechanical parts, among others. These go to about 84 countries, including Italy, Maldives, Sri Lanka, Russia, France, Nepal, Mauritius, Sri Lanka, Israel, Egypt, UAE, Bhutan, Ethiopia, Saudi Arabia, Philippines, Poland, Spain and Chile.

### **Steps Taken To Streamline Exports**

Several policy interventions by the government in the last few years have been aimed at encouraging defence exports, not only for bringing in revenue but also for strengthening diplomatic ties with other friendly foreign countries. These included the new export promotion cell under the defence ministry to coordinate export-related activities; notification of a scheme to

provide financial support to India's defence attaches for them to promote exports; increasing validity of an export authorisation; and a scheme for promotion of defence exports, including providing manufacturers access to testing infrastructure of defence ministry for validation of their products. The MoD has also prepared a defence production and export promotion policy, which is currently awaiting cabinet approval.

<https://www.news18.com/news/india/india-defence-exports-cross-rs-7000-crore-till-november-pending-major-deals-to-take-figures-higher-6500797.html>

## The Tribune

*Tue, 29 Nov 2022*

### **Gen Munir Takes Charge as Pak's 17th Army Chief**

Gen Asim Munir, former chief of the ISI, took charge as Pakistan's new army chief on Tuesday, replacing General Qamar Javed Bajwa after six years at the helm. General Munir took charge in a ceremony held at the army's General Headquarters in Rawalpindi, becoming the 17th chief of the Pakistan army at a time when former PM Imran Khan is leading a "long march" to dislodge the current government, the economy is on a downhill path and two provincial assemblies are facing political turmoil. He is the first army chief to have served as the head of the ISI as well as Military Intelligence. His stint as the ISI chief was a brief eight months and he was replaced with Lt Gen Faiz Hamid at the bidding of then PM Khan.

Hamid became the first casualty of Munir's elevation by opting for early retirement. He currently serves as the Bahawalpur corps commander. He was amongst the six generals considered for the posts of Chairman Joint Chiefs of Staff Committee (CJCSC) and the next Chief of the Army Staff. The government has named General Sahir Shamshad as the CJCSC. Another officer who is likely to put in his papers is the Chief of General Staff Lt Gen Azhar Abbas. General Munir joined the army through the Frontier Force Regiment and has served in the Force Command Northern Area as a Brigadier. He was made the chief of Military Intelligence in 2017 and the ISI chief the next year and has also served as Gujranwala Corps Commander for two years.

#### **ISI ex-chief seeks early retirement**

Bahawalpur: In the wake of Gen Asim Munir becoming Pakistan's new army chief, former Inter-Service Intelligence chief Faiz Hamid, who is considered close to former Pakistan Prime Minister Imran Khan, has opted for early retirement. Khan's appointee Hamid was supposed to be retiring in April 2023, but has now opted for early retirement, a Pakistan daily reported. He currently serves as the Bahawalpur corps commander.

<https://www.tribuneindia.com/news/world/gen-munir-takes-charge-as-paks-17th-army-chief-456098>

## **China to Increase Nuclear Warheads to 1,500, Pentagon Warns**

China is expanding its nuclear force and is on pace to nearly quadruple the number of warheads it has by 2035, rapidly closing its gap with the United States, the Pentagon said in a report released on Tuesday. The report builds on the military's warning last year that China is expanding its nuclear force much faster than US officials had predicted, highlighting a broad and accelerating buildup of military muscle designed to enable Beijing to match or surpass US global power by mid-century. Last year, the Pentagon said the number of Chinese nuclear warheads could increase to 700 within six years and may top 1,000 by 2030. The new report says China currently has about 400 nuclear warheads, and that number could grow to 1,500 by 2035. The United States, by comparison, has 3,750 active nuclear warheads.

Beijing's growing arsenal is creating uncertainty for the US as it navigates how to deter two nuclear powers, Russia and China, simultaneously, the Pentagon said in its recent nuclear posture review. And China's buildup also creates uncertainty about its intentions, said Bonny Lin, director of the China power project at the Centre for Strategic and International Studies. "Will the actual increase in capability start impacting how Chinese experts think about the use of nuclear weapons?," such as whether it would change Beijing's no "first use" policy, Lin asked. "That's the uncertainty. We can't assume that if they have more capabilities, that their policy is going to remain the same."

The report looks at China's activities in 2021 and therefore does not assess what impact Russia's invasion of Ukraine may have had on China's militarisation priorities or strategy, or to what extent the invasion has weakened or strengthened China's relationship with Russia, said a senior defense official who briefed reporters in advance of the report's release on the condition they not be named. While China has not provided Russia with weapons in the current conflict, its amplification of Russian disinformation and its continued support for joint military exercises with Russia is something the US is monitoring closely, the official said. China is also closely watching how the international community reacts to Russia's threat to use nuclear weapons in Ukraine, said John Erath, senior policy director for the Center for Arms Control and Non-Proliferation. "If Russia is able to gain its objectives by means of nuclear threats, China will derive lessons from that and could be potentially making these kinds of threats against Taiwan or other neighbouring countries in connection with China's territorial ambitions," Erath said.

The report was released as China is seeing its most widespread protests in decades, with demonstrators denouncing the country's "zero-COVID" policy, but the timing is unrelated. Congress requires the Pentagon to prepare the report annually. Its release also comes just two weeks after President Joe Biden met with China's President Xi Jinping on the sidelines the Group of 20 Summit in Bali, Indonesia, their first in-person meeting since Biden became president in January 2021. During their nearly three-hour session, Biden objected directly to China's "coercive and increasingly aggressive actions" toward Taiwan, but also said the US is not looking for conflict with the communist power. However, China considers Taiwan to be a "red



line", Defence Minister Wei Fenghe told US Defence Secretary Lloyd Austin in Cambodia last week, according to a statement provided by the Chinese Ministry of Defence.

"Taiwan is China's. Taiwan and the resolution of the Taiwan issue is China's own affair in which no outside force has the right to intervene," Wei said, according to the ministry's statement. Beijing has vowed to bring the self-governing island of Taiwan under its control, by force if necessary. Xi has given his military until 2027 to develop the military capability to retake the self-ruled island democracy that the Communist Party claims as its own territory. "If realized, this 2027 objective could give the (People's Liberation Army) capabilities to be a more credible military tool for the Chinese Communist Party to wield as it pursues Taiwan unification," the Pentagon found in its 2022 report. The US has committed billions of dollars in military weapons to Taiwan to build up its defences and help it rebuff any potential attack.

The senior defense official said the Defence Department does not see an imminent threat of invasion of Taiwan, instead establishing a new normal of increased intimidation. In reaction to House Speaker Nancy Pelosi's visit to Taiwan in August, China has also launched more frequent and aggressive military actions that test Taiwan's airspace and coastlines. China has also made worrisome gains in building capabilities that "blind and deafen the enemy," including knocking out communications and early warning satellites, expanding its use of artificial intelligence and intensifying their efforts in cyberwarfare, the report said. The Pentagon, in its recently released national defence strategy, said China remains the greatest security challenge for the United States, and that the threat from Beijing will determine how the US military is equipped and shaped for the future.

<https://economictimes.indiatimes.com/news/defence/china-to-increase-nuclear-warheads-to-1500-pentagon-warns/articleshow/95864172.cms?from=mdr>



*Tue, 29 Nov 2022*

## **Japan to Increase Defence Spending to over \$70 Billion by 2027 as it Junks Post World War II Pacifism to Deter China**

Japan will raise its defence spending to 2 per cent of its gross domestic product (GDP) by 2027, Prime Minister Fumio Kishida has said. For the fiscal year 2023, Japan's defence budget stands at around \$43 billion or a little over 1 per cent of the GDP. The spending on defence has been set at around one per cent of GDP or less for decades. But by 2027, the country's defence budget will likely surpass the \$70 billion mark. Kishida's Liberal Democratic Party (LDP), which has been in power almost continuously since 1955, had pledged to double defence spending to 2 per cent in its manifesto for elections held earlier this year. The decision to raise the defence budget comes ahead of the announcement of a revised national security strategy and defence build-up plan by the end of the year. Japan is revising its defence posture to address the security problems posed by a rising and increasingly assertive China.

Given Prime Minister Kishida's pronouncement to "fundamentally reinforce Japan's defense capabilities within the next five years," raising the defence budget seems to be the logical next step in Japan's move away from its pacifist turn following the second world war and towards the

development of credible hard power to deter Chinese misadventures. Japan's pacifist constitution was drafted by American occupation forces after the Japanese surrender in the second world war. The constitution, in its anti-militarist Article 9, forbids the use of force in international disputes. Japan's shift away from this pacifist turn was set in motion by late former Prime Minister Abe Shinzo, who was assassinated earlier this year. In 2014, Abe's LDP government approved the reinterpretation of the constitution, allowing the Japanese Self-Defense Forces for the first time to provide material support to Japan's allies in the event of war.

The debate over whether the "no war" clause in the constitution should be reformed or scrapped has intensified in recent years. In 2021, at the height of tensions between China and Taiwan, Japanese Defence Minister Nobuo Kishi, former Prime Minister Abe's younger brother, said Taiwan's security was linked to Japan's. With the military balance tipped in China's favour and questions over the US' willingness to intervene in the event of the invasion of Taiwan by the Chinese Communist Party, this was seen as an attempt to prepare the ground for Japan's greater involvement in responding to a future crisis. "It [China's aggressive behaviour] clearly shows that if anything happened with Taiwan that we will be affected," Taro Kono, who served as defence minister under Abe, said recently, reemphasizing the link drawn by Kishi.

A recent poll conducted by state broadcaster NHK found that 55 per cent of those surveyed favoured an increase in the country's defence spending, while around 29 per cent were opposed to it. An increase in the defence budget, Japanese officials have said, will allow the country to develop "counter attack" capabilities. This would involve the development of stand-off weapons, including long-range cruise missiles, capable of taking out targets deep inside the Chinese mainland. The raise would also bring Japan's defence spending in line with the target specified for the members of the North Atlantic Treaty Organization — the European allies of the United States.

<https://swarajyamag.com/news-brief/japan-to-increase-defence-spending-to-over-70-billion-by-2027-as-it-junks-post-world-war-ii-pacifism-to-deter-china>

## THE ECONOMIC TIMES

*Tue, 29 Nov 2022*

### **NATO Chief Says Alliance won't Back Down on Ukraine Aid**

NATO chief Jens Stoltenberg on Tuesday said the alliance would not pull back in its support for Ukraine, calling on partners to pledge more winter aid for Kyiv as it braced itself for more cold and darkness due to Russian attacks on infrastructure. NATO foreign ministers meeting in Bucharest are focusing on ramping up military assistance for Ukraine such as air defence systems and ammunition, even as diplomats acknowledge supply and capacity issues, but also discuss non-lethal aid as well. Part of this non-lethal aid - goods such as fuel, medical supplies, winter equipment and drone jammers - has been delivered through a NATO assistance package that allies can contribute to and which Stoltenberg aims to increase.

"NATO will continue to stand for Ukraine as long as it takes. We will not back down," Stoltenberg said in a speech in Bucharest. "The main focus is supporting Ukraine and ensuring President (Vladimir Putin) doesn't win," he said, adding that the only way to get the right terms

for a negotiation to begin would be for Ukraine to advance on the battlefield. Ukrainian President Volodymyr Zelenskyy warned his fellow citizens of new Russian attacks this week that could be as bad as last week's, the worst yet, which left millions of people with no heat, water or power. Russia acknowledges attacking Ukrainian infrastructure. It denies its intent is to hurt civilians.

"It is going to be a terrible winter for Ukraine, so we are working to strengthen our support for it to be resilient," a senior European diplomat said. Germany, which holds the G7 presidency, also scheduled a meeting of the Group of Seven rich nations with some partners on the sidelines of the NATO talks as it presses for ways to speed up reconstructing Ukraine's energy infrastructure.

Washington had been working with U.S. utilities and hardware providers and with European nations to locate equipment that can help restore high-voltage transmission stations damaged by Russian missile strikes, senior State Department official told reporters. The official did not specify what form the assistance would take or how much it would be worth. France and Germany have said they are sending more than 100 power generators each to help stabilise the electricity grid. "The reason Russia is continuing these war crimes is because it is losing ground," a French official said, referring to the attacks on civilian infrastructure.

### **Weapons' crunch?**

On the military side, NATO keeps pushing weapons manufacturers to accelerate production but a second diplomat cautioned there were increasing problems with supply capacity. "We are doing the maximum we can on deliveries, but there is a real problem. The Ukrainians know it. Even the U.S. weapons industry despite its strength is having issues," the diplomat said. Ministers will also discuss Ukraine's application for NATO membership. But they are likely to only confirm the alliance's open-door policy while NATO membership still appears far away. In 2008, a NATO summit at the same Palace of the Parliament in Bucharest, built under dictator Nicolae Ceausescu who was toppled in 1989, agreed that Ukraine would eventually become a member of the alliance. However, leaders have stopped short of taking any concrete steps such as giving Ukraine a membership action plan that would lay out a timetable for bringing it closer to NATO.

Georgia, Moldova and Bosnia will also attend the meeting on Wednesday as the alliance looks to strengthen ties with the countries amid fears Russia is seeking to destabilise states beyond Ukraine. NATO ministers will also talk about how to strengthen the resilience of society, days after Stoltenberg warned Western nations must be careful not to create new dependence on China as they wean themselves off Russian energy supplies.

<https://economictimes.indiatimes.com/news/defence/nato-chief-says-alliance-wont-back-down-on-ukraine-aid/articleshow/95852340.cms>

## **THE ECONOMIC TIMES**

*Tue, 29 Nov 2022*

### **NATO to Boost Ukraine Aid, Accuses Putin of Using Cold as 'Weapon of War'**

NATO allies said on Tuesday they would ramp up aid for Ukraine during a very tough winter caused by Moscow's targeting of its energy infrastructure, as the alliance's head accused Russian President Vladimir Putin of using the cold as "a weapon of war". Foreign ministers from the

NATO military alliance are seeking ways at talks in the Romanian capital Bucharest to sustain Kyiv's military and help keep civilians safe amid the constant blackouts and heating shortages. "President Putin is trying to use winter as a weapon of war," NATO Secretary-General Jens Stoltenberg told reporters at the start of a two-day gathering, echoing that sentiment, British Foreign Secretary James Cleverly accused Putin of targeting civilian and energy infrastructure "to try and freeze the Ukrainians in submission". Russia acknowledges attacking Ukrainian infrastructure but denies deliberately seeking to harm civilians. The ministers will focus on increasing assistance such as air defence systems and ammunition to Ukraine. They will also discuss non-lethal aid including fuel, medical supplies, winter equipment and drone jammers, delivered through a NATO assistance package that allies can contribute to. "I hope we will agree on a quite significant package of non-lethal help," Czech Foreign Minister Jan Lipavsky said. Ukrainian President Volodymyr Zelenskyy warned his fellow citizens of new Russian attacks this week that could be as bad as last week's, the worst yet, which left millions of people with no heat, water or power.

### **In The Dark**

Germany, which holds the presidency of the Group of Seven rich nations, scheduled a meeting of the G7 with some partners on the sidelines of the NATO talks as it seeks ways to speed up the reconstruction of Ukraine's energy infrastructure. "I think we all have seen these pictures taken from satellites where you see Europe in light and then you see Ukraine dark... so there is a huge task to rebuild all of this," Stoltenberg said. Washington is working with U.S. firms and European nations to locate equipment that can restore high-voltage transmission stations damaged by Russian missile strikes, a senior U.S. State Department official told reporters in Bucharest. The official did not specify what form the assistance would take or how much it would be worth. Other nations have already sent power generators to try to stabilise the electricity grid.

NATO is pushing arms manufacturers to accelerate production but a European diplomat said there were increasing problems with supply capacity. The Czech minister Lipavsky said the 30 NATO allies would discuss how to maintain short-term production and supply levels. Highlighting the view from Baltic states, which have been at the forefront of supporting Kyiv, Lithuanian Foreign Minister Gabrielius Landsbergis urged the alliance to press ahead with deliveries of tanks, saying NATO had plenty of them to spare. "My message to fellow foreign ministers at today's NATO meeting is simple: Keep calm and give tanks," he said on Twitter, showing an image of a Ukrainian flag with a tank in the middle. The ministers will be joined by Finland and Sweden, as they look to secure full NATO membership pending ratification of their bid by Turkey and Hungary.

### **Ukraine to join NATO?**

Ministers will also discuss Ukraine's application for NATO membership but are likely only to confirm the alliance's open-door policy while actual membership remains a remote prospect. Russia is fiercely opposed to Ukraine joining NATO. "We stated that Ukraine will become a member, I expect allies to reiterate that position," Stoltenberg said. "However, the main focus now is on supporting Ukraine. We are in the midst of a war and therefore we should do nothing that can undermine the unity of allies to provide military, humanitarian, financial support to Ukraine." In 2008, a NATO summit in Bucharest agreed that Ukraine would eventually become a member of the alliance but stopped short of taking any concrete steps. In particular, Germany

and France, warning against provoking Russia, rejected a U.S. proposal that would have seen Ukraine gaining a membership action plan.

<https://economictimes.indiatimes.com/news/defence/nato-to-boost-ukraine-aid-accuses-putin-of-using-cold-as-weapon-of-war/articleshow/95860246.cms>



Australian Government

Defence

*Tue, 29 Nov 2022*

## **Australian Air Force Milestone Celebrated at Air Show**

The RAAF's research and development unit (ARDU) celebrated an important milestone in allied cooperation while taking part in the Aerospace Valley Air Show at Edwards Air Base, California. The ARDU testing team were recently at the US base to complete the B-2A, B-52H and A-10C aircraft testing programs. They were joined by a KC-30A multi-role tanker transport aircraft and crew from RAAF Base Amberley – now capable of refuelling most United States Air Force (USAF) combat aircraft. ARDU was asked to participate in the static science, technology, engineering and maths displays at the air show, which included the Lockheed Skunk Works "Darkstar" movie prop from Top Gun: Maverick and a SR-71 Blackbird. Lead flight test engineer on the B-2 testing program, Flight Lieutenant Connor Wilson said before the show started, he was given the opportunity to see the 'SR-72 Darkstar' display being assembled. "I'd seen Top Gun: Maverick so it was really interesting to see the prop used in the movie in a static display beside its inspiration, the SR-71 Blackbird. "We got to walk around the hangar and get some photos before the crowds arrived. It was really cool," Flight Lieutenant Wilson said. The air show drew a crowd of more than 100,000 including 12,000 school children on what was touted as "the world's largest field trip" to watch aerial displays by heritage aircraft and the world's most advanced combat aircraft. The fast jets' multiple sonic booms commemorated the 75th anniversary of Chuck Yeager's 1947 flight at Edwards, which first broke the sound barrier.

The RAAF's chief of flight test, Squadron Leader Andrew Kerle said the testing crew were proud to represent the RAAF by taking part, and that the test completions had also marked an important interoperability milestone. "The Royal Australian Air Force has a long-standing relationship with the US Air Force flight test community," Squadron Leader Kerle said. "After our visit, our multi-role tankers are now fully interoperable with USAF strategically significant aircraft, including B-1B, B-2A, B-52H and A-10C as well as fourth and fifth generation fighters such as the F-35 series, F-22A, and F-16 series. "In the current geostrategic context, this is a significant capability for allied interoperability in our region." Flight Lieutenant Connor Wilson, said the Aerospace Valley Air Show was a unique experience. "I've worked on aircraft for a long time but had never seen them close up in action before as this was my first ever air show," Flight Lieutenant Wilson said. "I wasn't expecting to be overwhelmed, but the close-form displays by the Thunderbirds and heritage aircraft doing low-level loops and manoeuvres just above the runway were spectacular."

<https://www.defence.gov.au/news-events/news/2022-11-29/air-force-milestone-celebrated-air-show#:~:text=The%20RAAF's%20research%20and%20development,A%2D10C%20aircraft%20testing%20programs.>



*Tue, 29 Nov 2022*

## **Government Exempts ISRO from Provisions of Explosives Rule**

The government has exempted the Indian Space Research Organisation (ISRO) from taking its approval for manufacturing, storage, use and transportation of solid propellant for space rockets to promote ease of doing business. Earlier, ISRO was required to take a license from the Petroleum and Explosives Safety Organisations (PESO), an arm of the department for promotion of industry and internal trade (DPIIT). A solid propellant is the main fuel used in a category of space rockets. According to a notification of the DPIIT, the exemption is subject to a few conditions. "The central government hereby exempts Indian Space Research Organisation from the operation of all the provisions of the Explosives rule 2008 for manufacturing, storage, use and transportation of solid propellant for space rockets falling under UN Class I (explosives)," the notification said. As per the conditions, ISRO has to follow the guidelines of the Storage and Transportation of Explosives Committee (STEC) for the construction of buildings for the manufacture, storage, transportation and use of explosives. They also have to carry out a biennial safety audit of the solid propellant manufacturing facilities with the participation of a member from the Centre for Fire, Explosive and Environment Safety (CFEES), which is under the ministry of defence, as per the notification. An official said that the move is aimed at promoting ease of doing business. The PESO, formerly known as the Department of Explosives, is a nodal agency for regulating the safety of hazardous substances, such as explosives, compressed gas and petroleum.

The official said that ISRO is a world-class organisation and has all the expertise in handling such explosives and the composition of these materials is complex and sensitive. ISRO was demanding this exemption, which was in place before 2008. In 2008, some changes were made in the explosives rule, which took away that exemption and now that has been restored, the official said. "But this exemption is there only for such propellants. For hazardous chemicals, they will have to take the license," the official added.

<https://www.indiatvnews.com/news/india/government-exempts-isro-from-provisions-of-explosives-rule-2022-11-29-827342>

# The Tribune

*Tue, 29 Nov 2022*

## **Linking Grassroots Innovators, Tech Systems**

INDIA is not only a country with 1.4 billion people but also one with millions of problems. We can find solutions for these problems by effectively deploying science, technology and innovation. Solutions are required for a multitude of problems in the context of the basic needs of people — food, shelter, health, clean air, drinking water, communication, energy, education, agriculture and so on. It is not as if solutions or technologies don't exist for these problems in India or elsewhere, but the available solutions may not be affordable, accessible or sustainable. On the one hand, you have a technological fix — new devices and solutions based on high technology and, now, 'deep tech' for everything. High-technology solutions are usually based on advances in different branches of engineering. Deep tech refers to the new set of emerging technologies, such as artificial intelligence, machine learning, the Internet of Things, haptics, robotics, blockchain, big data and so on. On the other hand, you have innovative solutions coming from the grassroots which are frugal, affordable, sustainable and truly need-based. These are solutions to local problems developed by ordinary people, not scientists. Should deep tech and grassroots innovations grow in silos or is there a meeting ground for the two?

A beginning to address this vital question was made at the People's Festival of Innovations, jointly organised by Bengaluru-based technology incubator Centre for Cellular and Molecular Platforms and Grassroots Innovations Augmentation Network (GIAN), founded by Prof Anil Gupta. The idea behind this unique endeavour was to showcase both science-based and grassroots innovations on a common platform and encourage mutual learning as well as collaboration for societal applications. One could see Dharambir Kamboj of Yamunanagar, who has developed a multi-purpose food processing machine, or Mushtaq Ahmad Dar of Kashmir with his foldable LPG cylinder carrier rub shoulders with Ramya Yellapragada and Lakshay Sahni of StimVeda Neurosciences who have developed a wearable device to address depression or Karan Rao of Swachh.io, with his micro air purifier that can be attached to a ceiling fan.

Such efforts to bring technology-driven and informal innovators on one platform are critical to bridging the chasm between these two streams of innovation. One set of innovations grows in formal systems — technology institutions, incubators, venture capital funding and access to professional design and marketing expertise. The grassroots innovators are from varied social, educational and economic backgrounds with little or no access to the formal system of testing and validation, funding, marketing, etc. Many of them do not have access even to formal schooling. Their ideas and innovations, however, are practical and meant to serve a felt need. They need technological inputs for further improvisation and help to grow.

Over the years, many of them have done very well with help and recognition from catalytic organisations like GIAN. For instance, Dharambir Kamboj has sold his food processor to hundreds of entrepreneurs who are not only providing employment but also generating revenues worth several crores of rupees every year. The food processor is also being exported to countries in Africa and South America. This is an incredible success story. Incidentally, Kamboj once used to pull a cycle rickshaw in old Delhi for a living. Mitticool, a clay-based refrigerator, is another grassroots product that has achieved great market success.

The discourse on the use of technology to address societal needs is not new. It began in the 1970s when some conscientious scientists felt that the formal system of science and technology in India had failed the rural poor. They felt the need for alternative technologies for villages as the mainstream research organisations had got themselves aligned with elitist industrialisation. AKN Reddy, a professor of electrochemistry at the Indian Institute of Science in Bengaluru, formed the Application of Science and Technology to Rural Areas (ASTRA) Centre. Reddy developed a three-pan improved cook stove with high-energy efficiency. The technology was disseminated in Karnataka villages and other states as well.

In the 1980s, Rajiv Gandhi propagated that appropriate technology need not mean low technology. The government sought to deploy high technology for societal applications — computerisation of railway reservation, digital rural telephone exchange and the use of supercomputers for weather forecasting. The digital exchange developed by the Centre for Development of Telematics (C-DOT) is a classic example of a high-technology solution for an Indian problem. The telephone density in rural areas was low and the network was not dependable. This was because the imported telephone exchanges were not designed for high temperatures or high call volume. They could be installed only with air-conditioning and would often break down because of high traffic. The C-DOT digital switch was based on low-power consuming circuits and, thus, the exchange could withstand temperatures up to 45 degrees.

Though technology began to be deployed for societal applications, the focus was still on the formal sector. Those working informally or in the non-government sector remained on the fringe. Prof Anil Gupta, then teaching at the Indian Institute of Management, Ahmedabad, actively began working with the informal innovators and traditional knowledge systems. He launched the movement for promoting grassroots innovations in the mid-1990s. The movement led to a mechanism to identifying genuine innovators, validating their ideas and recognising them through awards.

A great effort was made to connect these innovators with formal science and technology systems so that their ideas could be scientifically tested and improvised. Over the past two decades, thousands of innovators from the informal sector have been scouted and their ideas and technologies widely disseminated or commercialised. The innovation festival that has brought together innovators and startups from diverse sectors together should begin a dialogue between technology-based startups and grassroots-driven innovators. They can learn from each other, find new solutions or discover new applications for available solutions. The dialogue could, perhaps, lead to new kinds of partnerships and convergence, taking advantage of the developing ecosystem for promoting startups.

<https://www.tribuneindia.com/news/comment/linking-grassroots-innovators-tech-systems-456023>





*Tue, 29 Nov 2022*

## **20 Times More Intense: New Material will Help Improve Phone and Television Displays**

Researchers have created fluorophores between 2.4 and 20 times more intense than analogs.

Scientists have created, synthesized, and analyzed a new class of fluorophores, which are luminous chemical compounds. These are the new bullet systems based on cyanopyrazine. According to research, the inclusion of cyanogroup compounds in fluorophores considerably boosts the efficiency of organic light-emitting diodes (OLED). This indicates they can be utilized to develop new materials to improve the brightness of smartphone, computer, and television screens. The researchers' findings were recently published in the journal *Dyes and Pigments*. The research was led by Egor Verbitskiy, the director of the Postovsky Institute of Organic Synthesis Ural Branch of RAS and a member of the Laboratory of Medical Chemistry and Advanced Organic Materials at the Ural Federal University. He states that physicists were aware that introducing cyanogroups to fluorophores can enhance the OLEDs' properties and overall efficiency.

“Therefore, we modified the pyrazine-based push-pull system with cyanogroup and studied how this affected the photophysical properties of the fluorophores and the performance of OLEDs based on it. The phenomenon of TADF, due to the peculiarities of the structure of the initial substance, did not arise, although there are prerequisites for it. However, it turned out that the introduction of a cyanogroup intensifies intermolecular interactions, as a result of which not individual molecules but complexes of molecules begin to fluoresce.” He continues, “As a consequence, the increase in luminescence intensity was from 2.4 to 20 times, and the brightness of the emitted light was up to 75 times. Such results were shown by several prototype devices made by our colleagues and co-authors from Tomsk State University. It is also important that we used inexpensive and accessible compounds in our research,” says Egor Verbitskiy.

Chemists previously established that the pyrazine ring (also known as 1,4-diazine), a compound of nitrogen, hydrogen, and carbon with a strong electron-accepting effect, is one of the most promising compounds as an acceptor (attracting electrons) part in push-pull systems. A study of the properties of a wide range of 1,4-diazine-based push-pull systems revealed that the addition of a benzene ring to the pyrazine cycle can improve the efficiency and brightness of the OLEDs produced. At the same time, some of the OLEDs tend to exhibit thermally activated delayed fluorescence (TADF). This is evidenced by the increase in fluorescence lifetime. Scientists are continuing to work on the creation of new fluorophores.

<https://scitechdaily.com/20-times-more-intense-new-material-will-help-improve-phone-and-television-displays/amp/>

