

September
2022

समाचार पत्रों से चयित अंश Newspapers Clippings

A Daily service to keep DRDO Fraternity abreast with DRDO
Technologies, Defence Technologies, Defence Policies,
International Relations and Science & Technology

खंड : 47 अंक : 175 15 सितम्बर 2022

Vol.: 47 Issue: 175 15 September 2022



रक्षा विज्ञान पुस्तकालय
Defence Science Library
रक्षा वैज्ञानिक सूचना एवं प्रलेखन केंद्र
Defence Scientific Information & Documentation Centre
मेटकॉफ हाउस, दिल्ली - 110 054
Metcalf House, Delhi - 110 054

CONTENTS

S. No.	TITLE		Page No.
	DRDO News		1-3
	DRDO Technology News		1-3
1.	ADA to Ready Aircraft Carrier-Based Fighter TEDBF for the Indian Navy by 2026	<i>Indian Defence News</i>	1
	Defence News		3-11
	Defence Strategic: National/International		3-11
2.	IIT कानपुर ने तैयार किया खास जूता, ग्लेशियर में तैनात सैनिकों के लिए साबित होगा 'वरदान'	<i>News 18</i>	3
3.	After 33 years, Navy Training Starts at Manasbal Lake in Ganderbal District	<i>The Tribune</i>	5
4.	Rajnath Conveys India's Concerns to US over F-16 Sustenance Package to Pakistan	<i>Financial Express</i>	6
5.	US has a Very Close Defence Relationship with India: Pentagon	<i>Hindustan Times</i>	7
6.	Russia says it Delivered S-400 Missile System to India on Time Despite Pressure from US	<i>The Print</i>	8
7.	How Underdog Ukraine has Pushed Russia on the Back Foot	<i>The Times of India</i>	10
	Science & Technology News		11-13
8.	NASA's Dart Mission: Spacecraft to Slam into Asteroid as Part of Planetary Defence Exercise	<i>Hindustan Times</i>	11
9.	The 9th National Level Exhibition and Project Competition (NLEPC) for INSPIRE Awards MANAK was Inaugurated Today at ITPO, New Delhi.	<i>Press Information Bureau</i>	12

DRDO News

DRDO Technology News



Thu, 15 Sep 2022

ADA to Ready Aircraft Carrier-Based Fighter TEDBF for the Indian Navy by 2026

By Girish Linganna

The Indian Navy plans to purchase domestically produced TEDBFs (Twin Engine Deck Based Fighters) to equip its fleet of aircraft carriers in the future. Based on the Indian Navy's specifications for the Multirole Carrier Borne Fighters (MRCBF) requirements, in April 2020, the Defence Research and Development Organisation (DRDO) and Aeronautical Development Agency (ADA) announced they would develop a new carrier-based fighter aircraft. The Government approved the project in the same year. In September 2022, ADA began the preliminary design phase of TEDBF, which is expected to be completed within two years. The design process consists of three parts. The initial step involves sizing, refining, and enhancing the aerodynamic design of the TEDBF. Using CFD Analysis, the aerodynamic configuration will then be adjusted. Subsequently, a wind tunnel testing model for high-speed and low-speed tests would be developed for TEDBF aircraft. In the last part of the preliminary phase, the wind tunnel will be used to evaluate the canard, air intake, and DSI. Within two to three years, the TEDBF project is expected to transition from the design phase to the implementation phase. In an optimistic scenario, the aircraft will be finished by 2026. The Indian Navy currently uses the MiG-29K onboard its carriers, which has certain operational issues. The engine has been reported to have fuel problems, excessive oil consumption, and too many failures.

The TEDBF Project

A two-engine delta-wing fighter with a canard is being developed under the TEDBF project. HAL will build the plane based on the ADA's design. As a multi-mission aircraft, it will carry

out air superiority, theatre defence, naval operations, and electronic warfare. It is expected that the TEDBF will replace the MiG-29K on the INS Vikramaditya and the INS Vikrant.

As a result of dissatisfaction with the characteristics of the single-engine carrier-based Tejas fighter, the naval LCA (N-LCA), and the possible termination of the program, the TEDBF program was officially announced. A model of the aircraft was presented at Aero India 2021. The first flight is planned for 2026, and the vehicle is expected to enter service by 2032.

The N-LCA program assisted the ADA designers in comprehending the carrier interface, launching from a ski jump at an angle of 140 degrees, taking off from a distance of 200 metres or less on an aircraft carrier, and landing on the deck. The aircraft is being tested at the INS Hansa, Goa, Shore Based Test Facility (SBTF). The two N-LCA models being tested are the modified Air Force version, and a newly built prototype of the navy version is expected shortly.

The two engines on the TEDBF will enable the plane to take off from the aircraft carrier more rapidly, manoeuvre more freely, have a greater flying range, and carry a greater combat load. In addition, it will give a survivability edge if one of the engines is disabled during battle. Its wings will fold for storage in aircraft carrier hangars. The aircraft would rely heavily on Indian ideas and manufacturing. The development of flying prototypes should cost around \$1.75 billion, according to first estimates.

TEDBF is planned to have a phased array radar. There are thirteen external hardpoints on the aircraft – including two for small air-to-air missiles on the wingtips. TEDBF will be the Naval analogue of Omni-Role Combat Aircraft (ORCA) being developed for the air force. ORCA is a ton and a half lighter than the deck version as it need not have ruggedized landing gear and structure strengthening for deck landing.

TEDBF is anticipated to have a crew of one pilot, a length of 16.3 metres, a wingspan of 11.30 metres, and a maximum take-off weight of 26,000 kgs. Two General Electric F414 diesel engines power the aircraft with a thrust of 5965 (10000) kgf. The aircraft may have a top speed of 1.6 Mach (2000 km/h), a ceiling of 18000 metres, a combat radius of 800 kilometres without air refuelling, and weaponry including a 30-mm gun, guided and unguided rockets, and 8000-kilogram bombs. TEDBF is a novel design based on technology developed and tested during the LCA Tejas programme. Similar to the Tejas Mk2, the distance between the engine intakes and canards are close. The LERX (Leading Edge Root Extension) distinguishes the front fuselage. Due to the aircraft's high Lift to Drag ratio and close-coupled canards, it will be able to take off easily and haul a significant amount of weight from the ski jump. The delta-shaped wings would be able to create negative lift at high wind speeds, providing the aircraft with constant lift (by acting as a rear stabilizer). To lessen radar visibility, the design of the front fuselage has been altered.

TEDBF will incorporate a DSI (Diverterless Supersonic Inlet), which enhances engine airflow, decrease weight, and minimize radar visibility. Therefore, it will grow stealthier.

MRCBF Is A Temporary Solution

While the TEDBF is being developed, the MRCBF will serve as an interim measure. Boeing F/A-18E/F Super Hornet and French Rafale M have cleared the trials and are the final contenders for the contract. During a news briefing, Vice Chief of the Indian Navy, Admiral SN Ghormade, said that Rafale and Boeing F-18 testing had been conducted to demonstrate their capabilities to operate from the Indian aircraft carriers. He said the objective of the Indian Navy is indigenization. And hence MRCBF and MiG-29s will be only a temporary solution. In 5-7 years, TEDBF could be ready, he added. Earlier, the Navy had said it was not interested in a single-engined fighter, effectively shutting out the Swedish Sea Gripen, also known as Gripen Maritime.

<http://www.indiandefensenews.in/2022/09/ada-to-ready-aircraft-carrier-based.html>

Defence News

Defence Strategic : National/International



Wed, 14 Sep 2022

IIT कानपुर ने तैयार किया खास जूता, ग्लेशियर में तैनात सैनिकों के लिए साबित होगा 'वरदान'

आईआईटी कानपुर ने एक ऐसा जूता तैयार किया है, जो ग्लेशियर और अत्यधिक ठंडी जगह पर तैनात सैनिकों के लिए बेहद मददगार साबित होगा. दरअसल भारतीय सेना के जवान ग्लेशियर और बेहद सर्द स्थानों पर तैनात रहते हैं. ऐसे में उन्हें वहां पर कई घंटे झूटी देनी होती है. सबसे ज्यादा दिक्कत उनके पैरों को होती है क्योंकि वह बर्फ में जम जाते हैं. वहीं, इस वजह से उन्हें कोल्डफिट की शिकायत हो जाती है, लेकिन अब यह समस्या नहीं होगी. आईआईटी कानपुर के मैकेनिकल इंजीनियरिंग विभाग की टीम ने स्पेशल जूते तैयार किए हैं. यह जवानों के पैरों को गर्माहट देने के साथ बाहरी तापमान के अनुसार जूते के अंदर का भी तापमान सेट कर

सकेंगे. वहीं, आईआईटी कानपुर ने इस तकनीक का भारतीय सेना के इस्तेमाल के लिए रक्षा मंत्रालय के इनोवेशन फॉर डिफेंस एक्सीलेंस में आवेदन करेगा.

जानिए कहां से आया आइडिया

आईआईटी कानपुर के मैकेनिकल इंजीनियरिंग और डिजाइन विभाग के प्रोफेसर जे रामकुमार ने न्यूज़ 18 लोकल से विशेष बातचीत में बताया कि उनको इसका आइडिया डॉक्टर डोकानिया से आया है. उनके मुताबिक, डॉक्टर ने बताया था कि उनको ऑपरेशन के दौरान कोल्डफिट की समस्या हो जाती है. ऐसे में कोई ऐसा प्रोडक्ट या जूता तैयार किया जाए जो इस समस्या से निजात दिला सके. इसके बाद इस जूते पर काम शुरू किया गया और इसको तैयार किया गया.

6 महीने का लगा समय

आईआईटी कानपुर के विशेषज्ञों ने 6 महीने की मेहनत के बाद इस जूते की डिजाइन और प्रोटोटाइप को तैयार कर लिया है. वहीं, इसकी मैकेनिज्म को भी तैयार कर लिया गया है. इसको तैयार करने में आईआईटी कानपुर के प्रोफेसर जे राम कुमार, दिवाकर तिवारी, जितेंद्र शर्मा, डॉक्टर डोकानिया और अमरदीप सिंह शामिल हैं.

ऐसे काम करता है जूता

इस जूते में 12 वोल्ट की बैटरी लगाई गई है और इसमें तापमान को नियंत्रण करने के लिए सेंसर युक्त डिवाइस का भी प्रयोग किया गया है. इसमें रबड़ सोल लगाया गया है जिसके बीच में तारों की एक पतली चादर डाली गई है. इसमें नाइक्रोम तार डाला गया है. वहीं, जब बैटरी से करंट इन तारों पर जाता है तो यह हीट प्रोड्यूस करते हैं जिससे गर्माहट महसूस होती है.

एयरफोर्स और डीआरडीओ को भाया यह जूता

प्रोफेसर जे रामकुमार ने बताया कि एयर फोर्स और डीआरडीओ के कुछ मेंबर्स ने जूते को देखा है. वह इसको काफी पसंद कर रहे हैं. उनका कहना है कि यह डिफेंस के क्षेत्र में बेहद मददगार साबित होगा. सैनिकों के लिए वरदान साबित होगा.

<https://hindi.news18.com/news/uttar-pradesh/kanpur-iit-kanpur-developed-special-shoes-for-indian-army-glacier-drdo-nodark-4595657.html>

The Tribune

Wed, 14 Sep 2022

After 33 years, Navy Training Starts at Manasbal Lake in Ganderbal District

After nearly 33 years, the Navy has resumed training at Manasbal Lake in north Kashmir's Ganderbal district. It was closed over three decades ago after the eruption of militancy in the erstwhile state. The training centre will be used to impart training to National Cadet Corps (NCC) of Jammu and Kashmir, officials said.

Nearly 100 NCC cadets, including girls, from different colleges of J&K are going to participate in the first camp, said Brigadier KS Kalsi, Group Commander, NCC Group, Srinagar. He said it was a historic day as after a gap of 33 years the NCC training activities of the naval wing had begun at the lake.

“The NCC training is a major organ of nation building. We also train them to join armed forces but the basic aim is to make them disciplined and grow as responsible citizens,” he said.

The NCC official said the security situation in Kashmir had improved to a great extent, allowing them to resume and revive the training.

According to Brigadier Kalsi, the training was imparted at Nagrota and Mansar lakes in Jammu during the suspension of activities at Manasbal which caused inconvenience to the cadets from Kashmir due to the bad condition of the Srinagar-Jammu highway.

Officials said a suitable camping site along with adequate infrastructure had been provided by the Manasbal Development Authority on the lakefront and two naval training boats had been shifted here from Mansar (Jammu).

The NCC started its activities in Kashmir in 1965 but the naval centre at Manasbal was closed in 1989 due to the security situation, Brigadier Kalsi said. “The cadets will be trained in various activities like boat pulling, sailing, signalling and ship modelling,” he added.

<https://www.tribuneindia.com/news/j-k/after-33-yrs-navy-training-starts-at-manasbal-lake-431729>

Wed, 14 Sep 2022

Rajnath Conveys India's Concerns to US over F-16 Sustenance Package to Pakistan

India has expressed its concerns with the US on its decision to provide a sustenance package for the F-16 fleet of Pakistan Air Force.

During his telephonic conversation with US Secretary of Defence Lloyd Austin, defence minister Rajnath Singh expressed India's concern. The minister announced this on his twitter handle and the Ministry of Defence issued an official statement regarding the same.

On his twitter handle the minister wrote that he had a warm and productive telephonic conversation with the US Secretary of Defence. The two talked about growing convergence of strategic interests, enhanced security and defence cooperation.

Both sides also talked about ways to deepen technological and industrial collaboration. And "to explore cooperation in emerging and critical technologies," Singh wrote on his social media handle.

According to the Ministry of Defence, Secretary Austin, while expressing his support for India's defence modernisation programme, was keen on strengthening defence industrial and technology collaboration between the two countries.

Ahead of the next round of 2+2 ministerial Dialogue in 2023, during the conversation the two reiterated to continue their productive engagements for deepening the India-US Strategic Partnership.

Background

Last week, the Biden administration approved a US\$ 450 million F-16 fighter jet fleet sustainment programme to Pakistan and has said that the fighter aircraft programme is an important part of a broader US-Pakistan bilateral relationship.

While defending its decision, the Biden administration said that this fleet will help Pakistan to support its counter terrorism operations. In a recent meeting with US Assistant Secretary of State Donald Lu, India had registered its protest against the US decision to sell spares to Pakistan. India has stated that this technology will be used against it.

It has been reported earlier that India has been accusing Pakistan of funneling US towards its proxy war in Jammu and Kashmir. Pakistan has also been fomenting terrorism in the region and had openly used its F-16 jets against India in the aerial dogfight after the Pulwama attack.

<https://www.financialexpress.com/defence/rajnath-conveys-indias-concerns-to-us-over-f-16-sustenance-package-to-pakistan/2667207>



Wed, 14 Sep 2022

US has a Very Close Defence Relationship with India: Pentagon

The United States has a very close defence relationship with India, the Pentagon has said as it dismissed questions about the latest multinational military exercises involving Russia, India and China. “India's a sovereign nation, they can make their own decisions in terms of who they're going to conduct exercises with,” Pentagon Spokesman Brig Gen Patrick Ryder told reporters at his news conference on Tuesday.

“Certainly, we have appreciated our partnership with India in the region. They're an important partner, as you know. And we'll continue to work closely with them,” he said responding to a question on India participating in a war game with Russia and China.

“They have participated in games -- war games with Russia and China, which seems a little bit troubling to some people,” he was asked.

“We have a very close partnership and relationship -- defence relationship with India. We obviously will continue to work with India and further develop that relationship,” Ryder said.

The Vostok military exercise was held from September 1 to 7 at different locations in Russia's Far East amid the Russian invasion of Ukraine. In the exercises number of countries, including India and China, are participating.

<https://www.hindustantimes.com/world-news/us-has-a-very-close-defence-relationship-with-india-pentagon-101663128456363.html>

Russia says it Delivered S-400 Missile System to India on Time Despite Pressure from US

Russia on Wednesday said it has delivered its most advanced long-range surface-to-air missile defence system S-400 to India on time despite pressure from Washington and the US-led West's sanctions, asserting that Moscow and New Delhi are firmly committed to their national interests.

Russian Ambassador to India Denis Alipov made the remarks ahead of a meeting between President Vladimir Putin and Prime Minister Narendra Modi on the sidelines of the SCO Summit in Uzbekistan this week where the two leaders are expected to discuss issues of strategic stability, the situation in the Asia Pacific region and bilateral cooperation within the UN and G20.

“Despite American pressure, India intends to unwaveringly stick to its national interests, especially when it comes to issues of building up the country's defensive capabilities. Therefore, we assume that the intergovernmental agreements, in particular regarding the supply of the S-400 systems here, will be implemented,” he said.

“Both we and our Indian partners are interested in seeing the respective commitments, including the deadlines, fulfilled,” Alipov told state-owned TASS news agency.

The S-400 is known as Russia's most advanced long-range surface-to-air missile defence system. The ‘Triumf’ interceptor-based missile system can destroy incoming hostile aircraft, missiles and even drones at ranges of up to 400 km.

Russia had started delivery of the first regiment of the missile in December last year.

The missile system has already been deployed in such a way that it can cover parts of the border with China in the northern sector as well as the frontier with Pakistan.

In October 2018, India had signed a USD 5 billion deal with Russia to buy five units of the S-400 air defence missile systems, notwithstanding warning from the then Trump administration that going ahead with the contract may trigger US sanctions under CAATSA.

Countering America's Adversaries Through Sanctions Act or CAATSA is a tough US law which authorizes the administration to impose sanctions on countries that purchase major defence hardware from Russia in response to Russia's annexation of Crimea in 2014 and its alleged meddling in the 2016 US presidential elections.

Russia has been a major supplier of military hardware to India. The two countries have been holding discussions on what kind of payment mechanisms can work between them in view of the western sanctions on Moscow. Alipov stressed that the level of partnership and mutual trust achieved by the two countries, makes it possible to discuss extremely promising trajectories for joint ventures. A program of military-technical cooperation for the next decade was approved at the landmark summit in December 2021, which envisages advancing the dialogue on a number of major projects.

“We hope that it will be successfully put into practice. Russia has been and remains India’s priority partner in the defence sector,” he stressed.

Alipov also said that military-technical cooperation between Russia and India is steadily developing in accordance with the new requirements.

“Our cooperation in this area is steadily progressing in accordance with the new requirements,” he said. “We see in them many opportunities for expanding the practice of joint production and advanced research and development.” Alipov said the two sides had already begun to talk about this substantively at the 2019 summit in Vladivostok, when an intergovernmental agreement was signed on the joint production of spare parts and components and maintenance of military equipment of domestic origin, including with the prospect of providing such services to the markets of third countries.

He said that the distinctive features of Russian-Indian military-technical cooperation include mutual readiness to take into account each other’s interests, as well as a high degree of adaptability to changing conditions.

“It’s a truly time-tested partnership,” he said, asserting that Russia is the only country that is ready to share advanced technologies with India.

He said the two countries had joint ventures and agreements on the localisation of production long before India adopted a state policy to achieve self-sufficiency of its military-industrial complex through cooperation with other nations.

“We are talking about the assembly of T-90 tanks, Su-30MKI fighter jets and other areas. Moreover, one of our most successful joint ventures for the production of BrahMos supersonic missiles is confidently entering the markets of third countries,” he said, adding that Russia is also helping Indian friends to follow a course of boosting exports of defence products. PTI ZH AKJ ZH ZH

<https://theprint.in/world/russia-says-it-delivered-s-400-missile-system-to-india-on-time-despite-pressure-from-us/1128760/>

How underdog Ukraine has pushed Russia on the back foot

Seven months into the Ukraine invasion, Ukrainian forces have inflicted heavy damage on Russian troops and retaken vast tracts in a matter of days. It's the biggest success for Kyiv since the fighting started, but it is still early to say the tables have turned



6,000 Sq Km In 12 Days

Ukrainian President Volodymyr Zelensky said on September 12 his forces had retaken territory a little bigger than the size of Delhi and Goa combined this month, mainly in northeast Ukraine's Kharkiv region. Ukrainian officials say they have taken so many prisoners of war that the country is running out of space to hold them. For Russia, it's the worst setback since the botched attempt to capture Kyiv in March.

Russian troops have responded with heavy bombardment of the retaken areas, but the Ukrainian military's advance might limit their ability to do so. That is because Izyum, which was the base for Russian operations in the Donetsk region, and Kupyansk, a rail junction and logistics hub used to replenish Russian munitions and supplies, are back in Ukrainian control.

Besides retaking Kharkiv, Ukraine has succeeded in wresting back control over about 500 sq km of territory in the southern Kherson region. Reports say Russian commanders were outwitted by Ukrainian manoeuvres suggestive of a counter-offensive being launched in Kherson even as a rapid assault was initiated in Kharkiv.

Key Military Equipment Sent To Ukraine

Himars rocket launchers: The US has sent at least a dozen M142 High Mobility Artillery Rocket Systems, which hold an edge over a comparable Russian system



M777 howitzers: In July, Australia, Canada and the US sent more than 100 long-range howitzer artillery guns with 300,000 rounds of 155mm ammunition



NLAW anti-tank weapons: Ukraine has also received at least 5,000 shoulder-launched NLAWs (Next Generation Light Anti-tank Weapon), which are designed to destroy a tank in a single shot



Drones: Turkey has sold Bayraktar TB2 drones, which have a maximum range of 300km and are armed with laser-guided bombs, to Ukraine recently



Talks Unlikely At This Stage

➤ Russia still holds about a fifth of Ukraine's 600,000 sq km territory, and it is not abandoning the "special military operation" it launched on February 24. However, the losses have prompted rare criticism of President Vladimir Putin within Russia with questions raised on Russian tactics and the use of a largely volunteer force to do the fighting.

➤ Taking note of Ukraine's "significant progress" US Secretary of State Antony Blinken said, "it's too early to tell exactly where this is going" as the Russians "maintain very significant forces in Ukraine as well as equipment and arms and munitions".

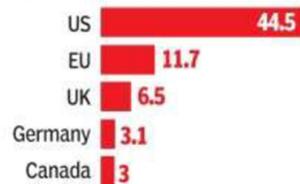
➤ Experts say, despite the setback, Ukraine's insistence on Russia withdrawing from all its territory – including Crimea that Russia has held since 2014 – makes it almost impossible for the two sides to be brought to the table.

Military Aid Helped Ukraine

Since the conflict began in February, Ukraine has received nearly \$85 billion in military, humanitarian and financial aid, with more than half of it coming from the US alone. International agencies like the IMF and World Bank have also pledged more than \$6.5 billion in financial assistance.

Ukraine says supplies of high quality weapons and ammunition are essential to match Russian forces. "Weapons, weapons, weapons have been on our agenda since spring. Ukraine's battlefield successes are our shared ones," Ukraine's foreign minister Dmytro Kuleba said

TOP 5 COUNTRIES, TOTAL AID TO UKRAINE (as of Aug 3, billion euros)



TIMES Special

Join the Times Special Readers' Club. Scan the QR code to share your inputs. Top contributors win rewards!



Text: Kenneth Mohanty & Anjishnu Das; Graphic: Karthic R Iyer; Source: Institute for the Study of War, UN, Kiel Institute, media reports

Air defences:

US has sent its advanced surface-to-air missile system, NASAMS, and Slovakia has provided S-300 air defence systems



The Cost Of War

5,767 Estimated number of Ukrainian civilians killed till September 9, though Ukraine claims nearly 30,000 civilians have been killed

13 million Ukrainians displaced, including 6.6 million within Ukraine and 6.7 million across Europe

9,000 Ukrainian troops killed, with thousands more injured



70,000 to 80,000 Russian troops killed or wounded, according to US officials

\$113.5 bn Cost of destruction in Ukraine

\$750 bn Total estimated cost of recovery

Science & Technology News



Thu, 15 Sep 2022

NASA's Dart Mission: Spacecraft to Slam into Asteroid as Part of Planetary Defence Exercise

A spacecraft launched by the US space agency Nasa will later this month slam head-on into a small asteroid, reports said this week, as part of a historic test to protect the planet from cataclysmic asteroid strikes. According to space.com, National Aeronautics and Space Administration's (Nasa) Double Asteroid Redirection Test (DART) mission will hit its target on September 26 with the objective of changing its trajectory. The mission will help scientists gauge how such crashes work, and what deflecting space rocks could look like. "These objects are hurtling through space and have of course scarred the moon and, over time, also on Earth have

had major impacts, have affected our history,” Thomas Zurbuchen, Nasa’s associate administrator for science, said during a news conference held on Monday. According to space.com, the DART spacecraft will slam into a small asteroid called Dimorphos, which like clockwork orbits a larger near-earth asteroid called Didymos every 11 hours and 55 minutes. Neither asteroid poses any threat to Earth, and DART won’t change that but the impact should adjust the orbit of Dimorphos, cutting its circuit by perhaps 10 minutes, the report added.

Scientists on Earth will be spending weeks after the impact measuring the actual change in the orbit to compare with their predictions and this will eventually help them refine their understanding of how asteroids respond to impactors.

“A series of new missions that we put in place are actually helping us understand and quantify those threats in an unprecedented fashion,” Zurbuchen added during the Monday press conference. “DART is a first mission to try to really bump out of the way an object of threat in a direct experiment.” “This is incredibly challenging,” Evan Smith, the deputy mission system engineer, said during the press conference, noting that the spacecraft will only be able to see Dimorphos itself about an hour and a half before impact. Scientists have identified and mapped the orbits of nearly 30,000 asteroids that rattle around the solar system in Earth’s neighbourhood. Still, it’s possible that an asteroid impact in the future could harm Earth, and planetary defence experts want to be ready, potentially preparing for missions that were once a reel-life spectacle, such as in Hollywood films like Deep Impact.



**Press Information Bureau
Government of India**

Ministry of Science and Technology

Wed, 14 Sep 2022 7:28PM

The 9th National Level Exhibition and Project Competition (NLEPC) for INSPIRE Awards MANAK was Inaugurated Today at ITPO, New Delhi.

During the year 2020-21, a total of 6.53 Lakh ideas were received from all States and UT’s, from which 556 were selected for the exhibition

Top 60 among these innovations will be awarded on 16th September 2022

The 9th National Level Exhibition and Project Competition (NLEPC) of INSPIRE Awards – MANAK (Million Minds Augmenting National Aspirations and Knowledge) was inaugurated at ITPO, Delhi, today, where the exhibits of 556 students from schools across the country were displayed. Dr. Akhilesh Gupta, Senior Advisor, Department of Science and Technology (DST),

who inaugurated the exhibition, conducted a walkthrough of the exhibition and interacted with the students from all parts of the country who are exhibiting their innovations. The students explained their innovations and communicated their inherent merit to all visitors and jury members.

The innovations reflected a realization of national priorities like technologies for the differently abled, for cleanliness and sanitation, as well as local and day to day necessities like picking fruits and cutting onions without hurting the eyes. Few of them were digital technology-related innovations that could contribute the digital economy.

On this occasion, Dr. Namita Gupta, Head – INSPIRE Awards & Scientist G, DST; Dr. Vipin Kumar, Director, NIF; Dr. Sandeep Bansal, Scientist DST; States / UT and District officials, and Teachers were also present along with the students.

The exhibition is one of its kind because of the diversity of innovations and geographical balance it represents, It is being organized for two days i.e. 14-15 September 2022 and is now open for the public to visit.

The NLEPC is an important milestone under the annual INSPIRE Awards – MANAK (Million Minds Augmenting National Aspiration and Knowledge), a flagship scheme jointly implemented by the Department of Science and Technology (DST), Government of India, and the National Innovation Foundation (NIF) – India, an autonomous body of the DST.

During the year 2020-21, a total of 6.53 Lakh ideas and innovations were received from all States and UT's of the country. The students who successfully make their way into the top 60 from this NLEPC will be conferred with an award by Dr. Jitendra Singh, Hon'ble Union Minister of State (Independent Charge), Ministry of Science and Technology & Earth Sciences, on 16th September 2022, at Vigyan Bhawan, New Delhi.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1859322>

