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April
2023

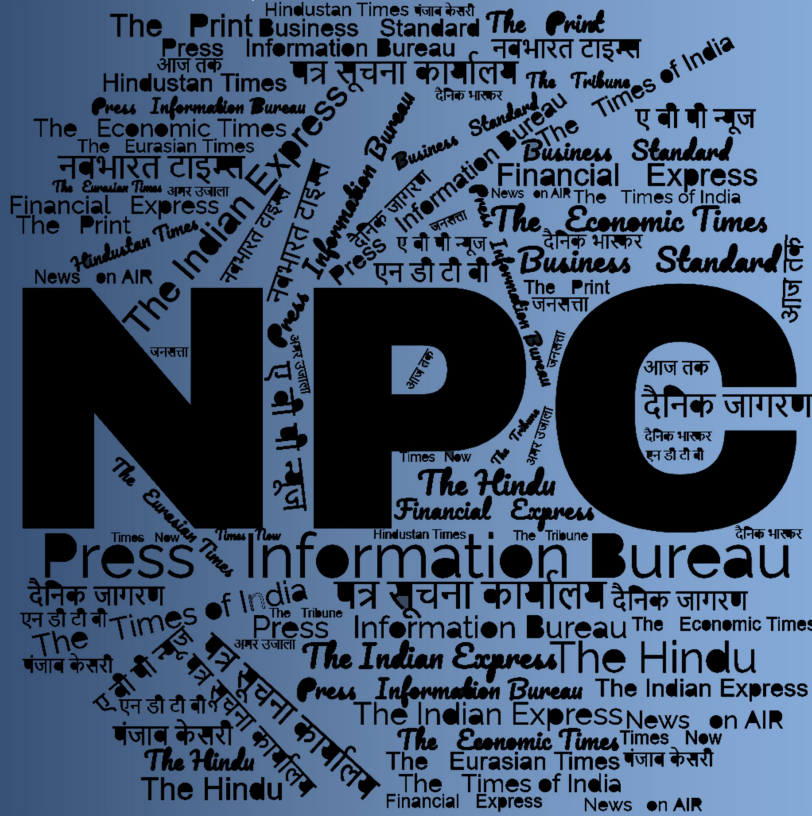
खंड/Vol. : 48 अंक/Issue : 74

21/04/2023

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DRDO News

DRDO Technology News



Thu, 20 Apr 2023

South East Asian Nations Want to Secure their Seas Against Hegemony: Brahmos CEO and MD

Indo-Russian venture BrahMos Aerospace is in talks with Indonesia to sell the supersonic cruise missile for an estimated \$200 million deal. BrahMos is targeting exports worth \$2 billion by the end of 2024. It will lead the way in achieving India's defence export target of \$5 billion set by Prime Minister Narendra Modi. BrahMos Aerospace CEO and MD Atul D Rane speaks to News9 Plus's Nivriti Mohan about the export deals, indigenous targets and the new NG version, among other subjects. Edited excerpts:

Can BrahMos achieve half of India's defence export target of \$5 billion as set by Prime Minister Narendra Modi by 2025?

The Prime Minister has set an export target for the entire defence industry. I believe BrahMos can achieve that on its own. If we fall short, the Indian defence industry will definitely join in. It's always good to overshoot the target. I am hoping that we will be able to do about \$ 2 billion worth of exports by the end of next year and \$ 5 billion by another year after that.

Where do you see yourself in the next 10 years?

Whatever we do in the next two years , double that on a yearly basis. We may reach close to \$ 8-10 billion worth of exports.

Is the next export deal happening with Indonesia? Your teams have been going to Indonesia in this context.

We are in talks with many countries. We've been talking to Indonesians the longest among all the countries. We are hopeful. Teams have been going in and out of Jakarta quite a bit. With these visits increasing, we are getting closer and closer.

Which missile version are you planning to export?

There are two versions, an anti-ship missile and a land attack missile. Most of the countries are interested in the anti-ship missile. It could be a coastal battery [ground-based launchers targeting warships], ship-launched anti-ship missiles, or air-launched anti-ship missiles. This is what we are trying to sell right now.

You signed a deal with the Philippines before this. Did it open doors for your exports?

The Philippines signed a deal worth \$375 million with us. It is a fairly small deal. We are looking for larger deals in the days to come. As far as the Philippines deal is concerned, it will be a delivery of missile systems in the next two and half years. We will start deliveries by the end of the year. This will be operational in the Philippines as a system, in the first quarter of next year. This will be the coastal missile battery that is on mobile launchers as anti-ship missiles. It will be located in three locations in the Philippines.

Who are your other buyers ? Is South East Asia a potential market for you?

The whole world is interested in buying from us but we can't sell to everyone. We can only sell to countries which are friendly with India and acceptable to Russia. We are targeting the whole of South East Asia, the whole of the Middle East and parts of Africa and Latin America. We are negotiating with many of these countries, 5-6 of them. It will come to fruit very soon. The Philippines deal has certainly opened doors of other countries for us.

Why is South East Asia a target market for you?

South East Asia becomes an automatic market for two or three reasons. One is India's Act East policy. Two, there is a common reason for looking at South East Asia. The nations in the region want to secure their seas against the hegemony of other countries. The West Philippines Sea has a lot of problems. The Philippines and other countries in South East Asia have been looking for the system for similar reasons. The countries in the Middle East have always been in line. We've had one-to-one talks with them . We will be going to these countries again and again.

You've said that many countries are demanding BrahMos missiles. Why must they choose to import from India over Russia or the West?

The need for BrahMos is obvious . It's a tactical deterrent. You secure your border upto 300 kilometres with a simple system. BrahMos is a stand-out system. All anti-ship missiles in the world are subsonic. The BrahMos is the only supersonic missile, so everyone wants it. It is easier for us to start defence diplomacy in South East Asia and the Middle East.

How indigenous is the Brahmos?

The BrahMos is a weapon system. As a ground system, it is more or less totally indigenous. As a missile system, most of these are from Russia. The whole support system is indigenously designed in the country. When we started in 1998 , we had just 13% Indian equipment. We did the first trial in 2001. Our first order was from the Indian Navy in 2004. The Indian Army and the Indian Air Force joined later. In March, we did a wonderful trial from one of the Indian Naval ships. With that we reached a 78% indigenous system level.

How much is remaining in terms of indigenisation?

We are left with a little that is a Ramjet sustainer which is Russian. We are in talks with Russia to do that too. We will be reaching the 95% indigenous target in 7-8 years.

Do you have a deal with the Indian Navy a well?

The Indian Navy is our prime customer . They have declared that the BrahMos is their frontline weapon. They have identified about 13 ships on which we will be fitting the BrahMos.

What are the new projects that you are now working on?

We are working on the next generation of BrahMos. We have finished the preliminary design , we expect to fly dummies by early next year and flight trials by the end of the year. After this our exports are expected to hit four times of what it is right now. It's called BrahMos NG and will be half the weight of what it is today, with the same range. Right now the air launch version weighs 2550 kg. The target weight for the new one is 1350 kg. Right now only one BrahMos missile can be carried under the belly of the SU-30. With the NG version, we'll be able to carry two missiles under the wings. And the same weight can be carried by almost any aircraft in the world. We will be looking at its integration with light combat aircraft (LCA). We have 200 industry partners in the country, it might expand to 250 with NG.

What a fantastic combination it will be , sell LCA with Indian armament. The Astra missile of DRDO and BrahMos missile. We are giving a package to the world.”

<https://www.news9live.com/india/south-east-asian-nations-want-to-secure-their-seas-against-hegemony-brahmos-dg-au2257-2112477>

DRDO on Twitter



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#DRDOUpdates | Wg Cdr Vishal Lakhesh performed live jump with indigenously developed High Altitude parachute with Navigation & advanced Sub-assemblies(HANS) from an altitude of 10,000ft as part of first development trial by ADRDE on 19th April 2023 at Agra
@SpokespersonMoD

High Altitude parachute
with
Navigation and advanced Sub-assemblies (HANS)

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Defence News

Defence Strategic : National/International



Press Information Bureau
Government of India

Ministry of Defence

Thu, 20 Apr 2023

Participation of Indian Air Force in Exercise INIOCHOS-23

The Indian Air Force (IAF) will be participating in Exercise INIOCHOS-23, a multi-national air exercise hosted by the Hellenic Air Force. The exercise will be conducted at the Andravida Air Base in Greece from 24 Apr 2023 to 04 May 2023. The Indian Air Force will be participating with four Su-30 MKI and two C-17 aircraft.

The objective of the exercise is to enhance international cooperation, synergy and interoperability amongst the participating Air Forces. The exercise will be conducted in a realistic combat scenario involving multiple types of air and surface assets. It will also enable the participating contingents to engage in professional interactions, providing valuable insight into each other's best practices.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1918257>



Press Information Bureau
Government of India

Ministry of Defence

Thu, 20 Apr 2023

Chief of the Defence Staff (CDS) General Anil Chauhan PVSM, UYSM, AVSM, SM, VSM Attends IAF Commanders' Conference

The CDS, General Anil Chauhan PVSM, UYSM, AVSM, SM, VSM attended the IAF Commanders' Conference (AFCC) at Air Headquarters (Vayu Bhavan) today, where he was briefed about the operational readiness of the IAF.

Later, speaking to the IAF Commanders present in the Conference, the CDS highlighted the need to chart a clear path towards fleet sustenance, while simultaneously taking steps towards

increasing indigenisation. He also discussed the contours of enhancing integration amongst the three services and the benefits that would accrue from the same.

The theme of this year's three-day AFCC which began on 19 April 2023 is 'Beyond Boundaries: Robust Foundation'. The Conference which is held every year, involves discussions on the year gone by and the progress made on the path planned for the future. Views of various government organs and academia are sought during the Conference which is also addressed by the Chiefs of the Army and Naval Staff.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1918385>

THE ECONOMIC TIMES

Thu, 20 Apr 2023

CDS Gen Chauhan Calls Upon IAF to Chart 'Clear Path' Towards Fleet Sustenance

Chief of Defence Staff Gen Anil Chauhan on Thursday called upon the Indian Air Force to chart a "clear path" towards fleet sustenance while simultaneously taking steps towards increasing indigenisation. Gen Chauhan made the remarks while addressing the IAF Commanders' Conference. The three-day conference began here on Wednesday.

The Chief of Defence Staff (CDS) was briefed about the operational readiness of the IAF.

"Later, speaking to the IAF commanders present, the CDS highlighted the need to chart a clear path towards fleet sustenance, while simultaneously taking steps towards increasing indigenisation," the IAF said.

He also discussed the contours of enhancing integration among the three services and the benefits that would accrue from the same.

The number of fighter squadrons of the IAF is going down as several of them have been phased out in recent years while a number of others are due for number-plating (retirement) in the next few years that include the Jaguar fleet. At present, the IAF has around 30 fighter squadrons against the sanctioned strength of 42 fighter squadrons. Each squadron comprises around 18 jets.

In October last year, Air Chief Marshal VR Chaudhari acknowledged that his force would not be able to reach the sanctioned strength of 42 fighter squadrons anytime soon, notwithstanding upcoming inductions.

The theme of this year's IAF Commanders' Conference is 'Beyond Boundaries: Robust Foundation'. The conference, which is held every year, involves discussions on the year gone by and the progress made on the path planned for the future.

Views of various government organs and academia are sought during the conference, which is also addressed by the chiefs of the Army and Naval Staff.

<https://economictimes.indiatimes.com/news/defence/cds-gen-chauhan-calls-upon-iaf-to-chart-clear-path-towards-fleet-sustenance/articleshow/99648634.cms?from=mdr>



Press Information Bureau
Government of India

Ministry of Defence

Thu, 20 Apr 2023

India & Thailand Review Defence Ties during 8th Defence Dialogue in Bangkok

Identify means to enhance defence industry, maritime security & multinational cooperation

8th India-Thailand Defence Dialogue was held in Bangkok on April 20, 2023. The meeting was co-chaired by Special Secretary, Ministry of Defence, India Smt Nivedita Shukla Verma and Deputy Permanent Secretary for Defence of Ministry of Defence, Thailand General Nuchit Sribunsong. During the meeting, both sides expressed satisfaction at the ongoing defence cooperation between the two countries.

The progress on various bilateral defence cooperation initiatives was reviewed. The co-chairs identified means to enhance existing areas of collaboration, especially in the field of defence industry, maritime security and multinational cooperation. Thailand expressed confidence in the capability of Indian defence industry. The two chairs also articulated steps in the direction of emerging areas of cooperation and issues pertaining to global commons.

During the visit, the Special Secretary also called on Permanent Secretary for Defence of Ministry of Defence, Thailand General Sanitchanog Sangkachantra.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1918285>

THE ECONOMIC TIMES

Thu, 20 Apr 2023

Two-Day Coastal Security Exercise Held Off Kerala Coast to Evaluate Threats from Sea: Defence Ministry

A two-day coastal security exercise -- 'Sagar Kavach' -- was conducted on April 18 and 19 off the coast of Kerala and Mahe to evaluate threats from the sea and validate the effectiveness of the security mechanisms, the defence ministry said. As part of the exercise, real time threats and contingencies were simulated to assess the preparedness level of the coastal security agencies, a defence ministry release said.

"Enhanced security measures were instituted and the entire coastline was kept under strict surveillance and monitoring. Deployment of coastal security apparatus including ships, patrol crafts and aircraft of the Indian Navy, Indian Coast Guard and other maritime security agencies were undertaken in the territorial waters and adjoining seas. "Naval aircraft based at INS Garuda undertook extensive surveillance off the coast of Kerala," it said. The exercise was carried out

under the aegis of Flag Officer Commanding-in-Chief, Southern Naval Command, who is also designated as the Commander-in-Chief, Coastal Defence (South), the release said.

It also said that the exercise was conducted in coordination with all coastal security stakeholders such as Indian Coast Guard, Coastal Police, Customs, Fisheries, Minor Ports, Intelligence agencies, Cochin Port and also the fishing and coastal communities.

"The exercise witnessed close coordination among all coastal security stakeholders and good synergy. Lessons learnt from the exercise would be incorporated to improve the robustness of the coastal security setup," the release said.

<https://economictimes.indiatimes.com/news/defence/two-day-coastal-security-exercise-held-off-kerala-coast-to-evaluate-threats-from-sea-defence-ministry/articleshow/99647161.cms>



Thu, 20 Apr 2023

India is ‘Atmanirbhar’ in Missile Technology

By Dr Santanu Mandal

India has always been a strategic player in the global geopolitical landscape, and as such, the country’s defence industry sector has always been of key significance. It should come as no surprise that India has one of the largest defence budgets in the world, behind the USA and China. Yet, India is still one of the largest defence importers globally. In fact, the Stockholm International Peace Research Institute’s “Trends in International Arms Transfers, 2021” factsheet has named India as the top weapons importer during 2017-2021.

However, India is keen on reversing the trend and becoming a top global exporter of defence equipment. Towards this, the government has launched various initiatives, including the Defence Production Policy of 2018 (DPrP-2018), ‘Atmanirbhar Bharat’ and Mission DefSpace. The objective of these initiatives is to incentivise and popularize home-grown technology towards becoming a self-reliant India, which will boost the country’s security, economy and innovation.

It should be pointed out that India is well on the way to becoming self-reliant in the defence sector. Over the past five years, the defence outlay and exports have increased eight times. Today, India exports defence equipment to more than 75 countries across the world. In what is considered the first major Indian defence sale of indigenously produced equipment, India entered into an agreement with the Philippines for the sale of BrahMos supersonic cruise missile. This could be the first of many, as Prime Minister Narendra Modi has stated that in the coming years, the target for India’s defence export is USD 5 billion or Rs 40,000 crores.

Indigenous Expertise in Missile technology

India has been working on missile technology for several decades. After realising the importance of guided missile weapon systems in modern warfare, the government set up a Special Weapon Development Team in 1958. It was this team that was expanded into a full-fledged laboratory – Defence Research and Development Laboratory (DRDL)– in 1961.

However, it wasn't until 1982 that DRDL took on the design and development of various types of missile systems and began producing them under the Integrated Guided Missiles Development Programme (IGMDP). Over the years, India has successfully developed five missiles – Prithvi, Agni, Akash, Trishul, Nag – under the IGMDP.

Over the past few years, there has been a quantum jump in the development of advanced systems and platforms for missile technologies; today, India is looking to sell missiles to the world. This is a huge achievement, given that just a few decades ago, there were sanctions and restrictions from many international bodies to prevent India from developing its own missile programme.

Given India's geopolitical position and security levels required, missile technologies need constant upgradation, which also translates to ramping up production capabilities. This requires the active participation of the private sector – missiles are one of the key items in the import embargo list, released by the Ministry of Defence in 2020, to promote indigenous production and self-reliance.

A total of 411 defence items and equipment are being produced by various companies and organisations in the country and procured by the government under various initiatives such as the Defence Production Policy of 2018 (DPrP-2018), “Atmanirbhar Bharat” and Mission DefSpace.

Increasing Role of the Private Sector in Securing the Supply Chain and Providing Technology for Self-reliance

With the aim to harness expertise and build production capability, the Defence Research and Development Organisation (DRDO) has also opened up partnerships with the private sector. Missile technology, especially supersonic (> Mach 1) and hypersonic (> Mach 5) technology, is a very niche technology that requires lightweight engineering materials for structural and functional applications.

Carborundum Universal Limited (CUMI), a global leader in material science, has signed a ToT (Transfer of Technology) for the manufacture of ceramic radomes from DRDO's Research Centre Imarat (RCI) laboratory. Radome is the nose of the missile, which withstands a high thermal shock resistance and protects the radar antenna electronic equipment from the weather along with radio-wave transparency. The technology requires high thermal shock resistance, and CUMI's ceramic radomes have proven to be an effective solution for the same.

CUMI has also partnered with leading institutions including IIT-Madras, IIT-Patna, Amrita Viswa Vidyapeetham, CSIR-NAL, CSIR-CG&CRI, DRDO and ISRO for the development of cutting-edge technology through sponsored projects and commercialisation of technology through ToTs.

Through in-house R&D, joint development projects (JDs) and ToTs, the company has developed niche technologies like nano-crystalline diamond coating technology, thin-film coating technology for aerospace & defence applications, light-weight ceramics for body/vehicle armour, and is in the process of developing solid-oxide fuel cell technology and solid oxide electrolyser technology.

The missile technology sector has the potential to revolutionise defense capabilities and make India self-sufficient in the domain of defence. The success of organisations like CUMI in developing cutting-edge technologies and contributing to the Indian government's goals is a testament to the country's potential in the field of missile technology. It is thus safe to say that

with the private sector rising to the vision of Atmanirbhar Bharat, India is well on the path to becoming self-reliant in defence and a global leader in missile technology.

<https://www.financialexpress.com/business/defence-india-is-atmanirbhar-in-missile-technology-3055590/>

THE ECONOMIC TIMES

Thu, 20 Apr 2023

Joint Indo-US Exercise in Bengal's Panagarh Air Force Station

A 12-day joint exercise of the air forces of India and the US is being held at Air Force Station Arjan Singh here, an official said. The IAF has employed three C130J and one C-17 transport aircraft, while the USAF has also brought four planes of similar configuration, he said.

A US special forces team that participated in the joint exercise from April 10, left on April 16 in one of their C103J aircraft, the official said.

The exercise started with several familiarisation sorties for the USAF air crew, which was followed by a specialised training of low cost low altitude air drop for the C130J air crew of IAF.

Combat free fall and night vision goggles assisted assault landing of the two forces were carried out at Rampurhat in neighbouring Birbhum district, the official said.

On April 17 and 18, large force engagement exercise was held at Kalaikunda Air Force Station in West Bengal's Paschim Medinipur district with fighter aircraft of the IAF and USAF, the official said. A long range equipment airdrop was also carried out at a drop zone in Agra during the joint exercise, which is scheduled to conclude on April 21, he said.

This is the 20th edition of Cope India, in which the USAF and the IAF have been holding joint exercises since 2004, the official added.

<https://economictimes.indiatimes.com/news/defence/joint-indo-us-exercise-in-bengals-panagarh-air-force-station/articleshow/99639289.cms>



Thu, 20 Apr 2023

India's Quest for Hypersonic Capability amid Global Tech Breakthrough

By Manish Kumar Jha

Hypersonic flight is the perceived future of human aviation. The staggering breakthrough in aviation is making entry into the era of hypersonic flight. Hypersonic is defined to be above Mach 5 (five times the speed of sound), while supersonic is merely above Mach 1. The thrust for

hypersonic systems is now entrenched into the strategic plan in which aerospace companies have started to deliver the combat jet and hypersonic weapons planes to the armed forces.

Why is it so important today? It does not have any counter mechanism as the hypersonic missiles are impossible to intercept as no credible technology — anti-missile systems— has been developed yet. While the hi-calibre radar can detect hypersonic vehicles—such as missile systems— only when the missiles are about to hit their intended target. In the ongoing war with Ukraine, Russia has fired its Kinzhal systems which demonstrated its capability. The hypersonic systems simply have no match for the tactical target within the Observe–Orient–Decide–Act loop as the speed is the new stealth.

Hypersonic breakthroughs

The whole concept of air dominance is now shifted more towards technological advancement based on subsonic speed, stealth and beyond; this prioritizes next generation technological assimilation over the numbers in terms of efficacy and overall strategic roles.

For example, the US air force’s SR-71 has been at the pinnacle of aviation speed for nearly half a century. The quest for such hypersonic platforms requires aerospace engineers to develop hybrid engines capable of handling subsonic, supersonic, and hypersonic speeds.

However, in this case, the propulsion needs to be recalibrated greatly between the supersonic and hypersonic regimes, with air-breathing, or ramjet designs more popular for increased speeds. And the development is already taking place in the aerospace clusters of advanced militaries, largely led by the US, alongside Russia and China. However, the recent development in China has raised debate if the hypersonic tech is still dominated by the US with the launch of the Chinese Fractional Orbital Bombardment System (FOBS). As the FOBS– The hypersonic glide vehicle – loaded with warhead was tested in low-earth orbit as it circled the globe, re-entered the atmosphere and hit the target.

The advancement is based on the seamless transition between turbojet, ramjet, and back to turbojet.

In 2021, the US Air Force awarded Hermeus a \$60 million contract to develop three uncrewed concept aircraft, including the hypersonic “Quarterhorse.” In fact, in 2022, Hermeus achieved a major milestone by successfully firing a turbojet-ramjet hybrid engine called — Chimera. The goal of Quarterhorse is to validate Chimera engine in-flight and touch Mach 4+ speeds – breaking the nearly 50-year-old airspeed record held by the legendary SR-71.

The most critical is the sheer complexity of the transition from turbojet mode to ramjet mode in quick succession. In this case, a ramjet, which operates at high speeds, pressurizes air and fuel in the combustion chamber. Such intakes push the aircraft to Mach 5 and beyond. The breakthrough in Quarterhorse is paving way for the new generation of jets.

India’s hypersonic projects

The Defence Research and Development Organization (DRDO) has been working on hypersonic missiles since 2018.

In 2020, the Defence Research and Development Organisation (DRDO) tested the hypersonic air-breathing scramjet system for propulsion, called the Hypersonic Technology Demonstration Vehicle or HSTDV. According to a defence official, the HSTDV attained a speed of Mach 6 for 23 seconds during the testing. Here, India successfully tested the scramjet-powered HSTDV.

“India gets the upper hand,” said a DRDO scientist. “The advantage is all about the speed as these are almost impossible to detect and gauge trajectory because they have the capability to maintain high speeds (Mach 6-10) at low altitudes while also being highly manoeuvrable,” said the DRDO scientist.

Taking further cue from the recent Agni-5 missile test that doesn't seem to be a standard ballistic missile test. The tests broke away from the usual path of ballistics tests with the low velocity of the missile which indicates its quasi-ballistic role, which is usually depicted by a Hypersonic Glide Vehicle rather than a standard nuclear missile launch.

The Agni-5 provides ample scope of the hypersonic air-breathing scramjet technology since the DRDO has already successfully tested the flight of the HSTDV.

The test has validated the scramjet propulsion technology for the ignition and sustained combustion at hypersonic air flows using atmospheric oxygen. It also validates the critical phase of separation between the booster and hypersonic flight.

In line, BrahMos Aerospace Corporation has also put forward the feasibility of such a missile. In fact, BrahMos Aerospace has shown a willingness to undertake such an initiative should the government of India (GOI) accept the acceptance of necessity (AoN). As reports indicate such initiatives are already underway as the GOI intends to induct it into the armed forces within five years.

However, the major challenge remains in terms of communications and connectivity at hypersonic speed over Mach 5. This is crucial as the military gears up for the induction in the near future. “The DRDO must validate the target acquisition capability, missile guidance and control mechanisms,” said a senior military commander of the Indian army.

The development of hypersonic weapons has already been established as early as the 1950s with intercontinental ballistic missiles flying at speeds of Mach 25. China has already marked it under its major programme on hypersonic weapons with higher determination than ever before. For India, the time has come to break the hypersonic barriers for the ongoing and futuristic systems and weapons.

<https://www.financialexpress.com/business/defence-indias-quest-for-hypersonic-capability-amid-global-tech-breakthrough-3055587/>

R. REPUBLICWORLD.COM

Thu, 20 Apr 2023

Cyber Crime is Emerging as the Biggest Threat with no Boundaries, Beware: Uttarakhand DGP

Nothing is 100 per cent safe on the Internet and cybercrime is emerging as the "biggest" threat and challenge for police forces in the country, Uttarakhand police chief Ashok Kumar said here on Thursday. Kumar, a 1989-batch Indian Police Service (IPS) officer, was speaking at the IIT-Delhi campus during a panel discussion on the launch of his latest book 'Cyber Encounters:

Cops' adventures with online criminals' which he co-authored with O P Manocha, an ex-DRDO scientist.

The book offers insights into 12 real cyber crime cases investigated and cracked by the police and the extent of the multi-layered complexities that are part of these online and borderless crimes.

"The volume of cyber crime cases is so high and the criminal who is perpetrating is sitting so far away that catching them is very difficult. This crime has no boundaries.

"With the future of 5G and Internet of Things (IoT) on the horizon, it is going to be difficult for us," the Uttarakhand Director General of Police said.

The officer, who did his BTech and MTech from the Indian Institute of Technology (Delhi), said the Uttarakhand Police has cracked many such cases with a dedicated team in place and they are investing in modern technology to bolster the capabilities of the state cyber police unit.

"I can tell you," the Director General of Police (DGP) said, "that nothing is 100 per cent safe on the Internet." "Be vigilant while using the Internet and sharing personal information. Don't use Aadhaar or other vital IDs as your first identification proof," the DGP said.

Kumar said the cyber criminals were using newer techniques to con people as he quipped that the fee of some cyber courses are now higher than the IITs.

"The book gives a number of tips to keep one self protected and the one talisman I always give to people is that always keep this in mind that an OTP (one time password) is used to withdraw money from your account and not to send funds. So, never share OTPs with unauthorised persons," he said.

Kumar has earlier authored two books on the human face of Khaki and another on internal security.

National Cyber Security Coordinator Lt Gen (retd) Rajesh Pant, who spoke during the discussion, said cyber crime was a "serious problem" but the Union government and Home Minister Amit Shah were very concerned about this issue and hence the Indian Cyber Security Coordination Centre (I4C) was established in the Ministry of Home Affairs.

About 4,000 cyber crime cases are registered daily on an average on the "http://cybercrime.gov.in portal but the actual figure could be about 10,000 as the filing of cases are being done only by those who know about this website, Pant said.

He said there were "voids" that Indian cyber crime combat agencies were trying to fill up.

Wearables brand boAt co-founder Aman Gupta also spoke during the event and recounted a recent event where his team found that as many as 10,000 "replications" of his company's website were made and fake gadgets, at one-fourth their original price, were being sold to customers.

"We felt very bad...people lost their money. We reported the incident to police and our chief technology officer had to work overnight to sort out the issue," Gupta said.

<https://www.republicworld.com/india-news/general-news/cyber-crime-is-emerging-as-the-biggest-threat-with-no-boundaries-beware-uttarakhand-dgp-articleshow.html>

India, US Facing Same Security Challenge from China, says US Indo Pacom Commander

The US is providing assistance to its critical partner India to enhance capabilities that it might need to defend its border with China and also develop its own defence industrial base, a top American commander has said, stressing that New Delhi and Washington face the same security challenge from Beijing in the Indo-Pacific region.

"We value our partnership with India, and we've been increasing it and doing a lot more, over time. They have the same security challenge, primary security challenger that we do, and it's real on their northern border," Admiral John Christopher Aquilino, commander of US Indo-Pacific Command, told members of the House Armed Services Committee during a hearing on Indo-Pacific National Security Challenges.

"Two skirmishes now in over the past nine or 10 months on that border, as they continue to get pressurised by the PRC (People's Republic of China) for border gains," Admiral Aquilino said.

He was responding to a question from Indian American Congressman Ro Khanna.

"I would like you to reflect on the importance of the relationship -- postcolonialism India and China had a relationship to emerge as the Asian voice. But that relationship now has really soured with a concern that there should not be a hegemon in Asia and that China is treating other countries as junior partners," Khanna said.

"It seems to me that this gives us an opportunity to ensure that China doesn't emerge as a hegemon to strengthen the relationship with India," said the Indian American Congressman.

Aquillino said both India and the US have the same security challenges. "We also have the desire to operate together, based on the world's largest democracy. We have common values, and we also have people-to-people ties for a number of years. I met with General (Anil) Chauhan, my counterpart, at the Raisina Dialogue not long ago. I've been to India five times now in the past two years.

"So, the importance of that relationship can't be overstated. We operate together, frequently, with the Quad nations. Again, the Quad is not a security agreement, it's diplomatic and economic, but the Quad nations come together, often, to operate together in multiple exercises. So, we continue to work to be interoperable and to expand the relationship," he observed.

In November 2017, India, Japan, the US, and Australia gave shape to the long-pending proposal of setting up the Quad to develop a new strategy to keep the critical sea routes in the Indo-Pacific free of any influence. Indian and Chinese troops are locked in a three-year confrontation in certain friction points in eastern Ladakh even as the two sides completed disengagement of troops from several areas following extensive diplomatic and military talks.

India has been maintaining that its ties with China cannot be normal unless there is peace in the border areas. Beijing claims almost all of the 1.3 million square miles of the South China Sea as its sovereign territory.

China has been building military bases on artificial islands in the region also claimed by Brunei, Malaysia, the Philippines, Taiwan, and Vietnam.

In response to another question from Congressman Patrick Ryan, the admiral said India is a critical partner and besides conducting joint war exercises in the Malabar, the US is providing assistance to India "as it applies to cold weather gear and other capabilities that they might need, as they defend their border on the northern side."

"But additionally, we're expanding our cooperation in the form of production as India tries to work to develop its own industrial base. So, C-130 critical components are made in India, helicopter and critical frameworks made in India. That is expanding the partnership and moving them towards self-sufficiency and increased partnership with the United States," Aquilino added.

Referring to the recently launched India-US initiative for critical and emerging technology announced by the national security advisors of the two countries, Jedidiah P Royal, Principal Deputy Assistant Secretary of Defense for Indo-Pacific Security, said: "We're already delivering offers under the context of the ISAT arrangement. This is a real moment of convergence for the United States and India and we're looking to take full advantage of it, going forward."

Testifying before the committee, Royal said: "India faces the same challenges that we face in the region. So what we're seeing right now is a moment of strategic convergence in our relationship with the government of India. There's a lot of momentum in that regard. With respect to your question on from whom do they buy their weapons, we believe that they are through a generational process of looking to diversify off of traditional suppliers.

"We want to make sure that the US defence industrial base is in the best position possible to be India's partner of choice moving forward," he said.

In response to another question, Aquilino said the US is working with our Indian partners both to advance their warfighting capabilities together to ensure that the US is sharing information that's needed.

"We do have the same strategic competitor or whatever definition we want to put on it and in my time over in the theatre now for five years straight, it has increased exponentially. It's trending in the right direction. They're really good partners," he said.

<https://economictimes.indiatimes.com/news/defence/india-us-facing-same-security-challenge-from-china-says-us-indo-pacom-commander/articleshow/99633280.cms>

THE TIMES OF INDIA

Fri, 21 Apr 2023

Major Defence Collaboration in Work to Manufacture Sophisticated, Modern Equipment in India: US Official

A major India-US bilateral defence collaboration is in the works for India to make sophisticated modern defence equipment, the Biden administration's point person for South and Central Asia said on Thursday, hoping an announcement in this regard will be made in the next few months.

“I think it makes eminent sense for India to produce world-class defence equipment for its own needs, and potentially as an exporter, for the world,” US Assistant Secretary of State for South and Central Asia Donald Lu told PTI in an interview on Thursday.

The senior State Department official, however, refrained from giving details of the major defence collaboration to manufacture modern and sophisticated defence equipment in India.

“We are already major partners in the defence field. We, over the last 20 years, have had a defence trade of over USD 20 billion. And I know our private companies and our governments, our ministries of defence are talking on a regular basis about how we cooperate,” he said.

Lu pointed out that last April during the Two Plus Two Dialogue involving India's Minister of Defence and External Affairs Minister and their American counterparts Secretary of Defence and Secretary of State, for the first time there was American support for Prime Minister Narendra Modi's Make in India initiative.

“We can see that India is shifting away from dependency on other countries and looking to produce defence supplies, and defence equipment in India itself and that's a process we strongly support. And I hope in the coming months that you will see announcements, a major collaboration between our countries for sophisticated, modern, capable defence equipment that will be made in India,” Lu told PTI in response to a question.

This is “absolutely part” of the Initiative on Critical and Emerging Technology (ICET) Dialogue that was launched by India's National Security Advisor Ajit K Doval and his American counterpart Jake Sullivan, he noted.

“But it's something we have been working on now for several years with India. I think you'll see this year ahead will be pivotal in terms of our defence cooperation,” he said.

Lu, however, refrained from giving any other details. “I think that's as much as I'm able to say in detail. But it will be exciting. And I hope by the end of the year that we will have a more detailed discussion about what those specific defence cooperation items are,” he said.

According to an Indian Embassy fact sheet, India-US defence cooperation is based on the “New Framework for India-US Defence Cooperation”, which was renewed for a period of ten years in 2015.

In 2016, the defence relationship was designated as a Major Defence Partnership (MDP) to build a comprehensive, enduring and mutually beneficial defence partnership.

On July 30, 2018, India was moved into the Tier-1 of the US Department of Commerce's Strategic Trade Authorization license exception.

The Defence Policy Group (DPG) headed by the Defence Secretary and Under Secretary of Defence (Policy) provides a platform for a comprehensive review of defence dialogues/mechanisms.

In August 2022, a US Navy Ship (USNS) Charles Drew visited Chennai for repairs and allied services. This was the first-ever repair of a US Navy ship in India.

Several defence agreements have been signed, including the Logistics Exchange Memorandum of Association (2016); the Memorandum of Intent between the US Defence Innovation Unit (DIU), and the Indian Defence Innovation Organisation - Innovation for Defence Excellence

(2018); Communications Compatibility and Security Agreement (2018); Industrial Security Agreement (2019); Basic Exchange and Cooperation Agreement (2020).

Bilateral exercises include Yudh Abhyas (Army); Vajra Prahar (Special Forces), and a tri-services exercise– Tiger Triumph (inaugurated in 2019).

India joined the multilateral Combined Maritime Force (CMF) based in Bahrain, as an Associate Partner in April 2022. In November 2022, the Australian Navy joined the US-India-Japan MALABAR annual Naval Exercise. The US participated in India's multilateral Exercise Milan 2022.

<https://timesofindia.indiatimes.com/india/major-defence-collaboration-in-work-to-manufacture-sophisticated-modern-equipment-in-india-us-official/articleshow/99653410.cms>



Thu, 20 Apr 2023

Keen to Assist India with Jet Engine, Electric Propulsion Technology: UK Chief of Defence Staff

The United Kingdom is ready to assist India with the technology related to electric propulsion and also India's bid for an indigenously developed jet engine. A memorandum of understanding (MoU) on military training is also under discussion between the two countries, said Admiral Sir Tony Radakin, Chief of Defence Staff (CDS) of the UK, on Wednesday.

Admiral Radakin's visit is the latest in interactions and visits at the high levels in addition to the military-to-military engagements between India and the UK.

Sharing the fine points of the UK's offerings towards Make in India initiatives, Admiral Radakin said: "There are lots of ways and they're exciting ways. The sharing of maritime electric propulsion... we've been on that journey for 20 years, so can we help India to accelerate and know everything that we've learned over the last 20 years. We are doing that. Various working groups have come to India. We've had a working group in UK."

"One of the topics under debate at the moment is a training MoU which would allow the UK and Indian forces to have this training ethos and basis for us to come together in the future. And that's across all domains, land, air, and maritime," he added.

The CDS was speaking to journalists on Wednesday, the concluding day of his three-day visit which coincides with the visit of the Chief of Royal Air Force, Air Chief Marshal Sir Mike Wigston. "The UK is proud of being a joint force where maritime, air and land work together and we're looking to more strongly include space and cyber domains."

<https://www.newindianexpress.com/nation/2023/apr/20/keen-to-assist-india-with-jet-engine-electric-propulsion-technology-uk-chief-of-defence-staff-2567621.html>

THE ECONOMIC TIMES

Thu, 20 Apr 2023

Iran Army gets 200 New 'Strategic' Drones: State Media

Iran's defence ministry has delivered the army with more than 200 new drones equipped with missile capabilities and electronic warfare systems, state media reported on Thursday.

In a ceremony broadcast on television, Defence Minister Mohammad-Reza Ashtiani handed over "more than 200 long-range strategic drones" to army chief Abdolrahim Mousavi, the official news agency IRNA said.

Produced by the Iranian defence ministry, the drones are designed for reconnaissance and strike missions, and can carry air-to-air and air-to-surface missiles, IRNA said.

The United States and the European Union have sanctioned Iran over its drone programme, alleging it had supplied Russia with unmanned aerial vehicles for its war on Ukraine -- a charge Tehran denies.

<https://economictimes.indiatimes.com/news/defence/iran-army-gets-200-new-strategic-drones-state-media/articleshow/99645787.cms?from=mdr>

Science & Technology News



Press Information Bureau
Government of India

Ministry of Science & Technology

Thu, 20 Apr 2023

Best Practices & Policy Models of G20 Nations for Sustainable Energy Transition Discussed at G20 Research Innovation & Initiative Gathering Conference

Experts deliberated on best practices and policy models of G20 nations for sustainable energy transition at the G20 Research Innovation and Initiative Gathering (RIIG) Conference on Eco-Innovations for Energy Transition organised at Dharamshala, Himachal Pradesh.

"We are at a pivotal moment in our existence where we must prioritize transitioning away from fossil fuel consumption. The potential for harnessing renewable energies is great enough to meet our requirements, but capturing, converting and storing them on a large scale requires a monumental effort which can be accomplished by working together," said Dr. S Chandrasekhar, Secretary DST, and Chair G20-RIIG in his opening remarks at the conference.

The conference, which concluded on 19th April 2023, brought together a total of 29 foreign delegates and 30 Indian experts and invitees from various scientific departments/ organisations of Govt of India. Amb D P Srivastava, Distinguished Fellow, Vivekanand International Foundation, spoke on India's Energy Transition in a carbon-constrained world.

The G20 countries and International Organisations which participated in the conference are Indonesia, Turkiye, the United States of America, Russia, Saudi Arabia, Singapore, UAE, United Kingdom, Netherlands, France, Netherlands, Republic of Korea, Russia, United Kingdom, Spain, European Union and International Solar Alliance (ISA).

Topics like smart energy transformation, storage, and management; mission-driven research in sustainable energy transitions; policy frameworks for research and innovation in carbon-neutral energy sources and green hydrogen were deliberated on, and cooperation among G20 members on specific thematic areas was discussed during the meeting.

The Research Innovation Initiative Gathering (RIIG) is a new initiative of G20 Forum, which was initiated during the Indonesian Presidency in 2022.

The next RIIG meeting will be held in Diu on the topic scientific challenges and opportunities for a sustainable blue economy. The RIIG Meetings will conclude with the RIIG Summit and Research Ministers meeting in Mumbai on 5th July 2023, and a joint declaration will be adopted by G20 members.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1918282>



Thu, 20 Apr 2023

PSLV-C55 Mission: ISRO to Carry out In-orbit Scientific Experiments using SPENT PS4

Indian Space Research Organisation (ISRO), which is scheduled to launch the Polar Satellite Launch Vehicle C55 (PSLV-C55) mission on April 22 with Singapore's TeLEOS-2 as primary satellite and Lumelite-4 as a co-passenger satellite, will carry out in-orbit scientific experiments by using the spent PS4 (fourth and final stage of PSLV) as an orbital platform.

The PSLV-C55 mission has the PSLV Orbital Experimental Module (POEM), where the spent PS4 of the launch vehicle would be utilised as an orbital platform to carry out scientific experiments through non-separating payloads.

This is the third time that PS4 will be used after satellite separation as a platform for experiments.

According to the space agency, POEM has seven experimental non-separable payloads

- PiLOT (PSLV In orbital Obc and Thermals), a OBC package from Indian Institute of Space and Technology (IIST)
- ARIS-2 (Advanced Retarding Potential analyser for Ionospheric Studies) experiment from IIST

- HET-based ARKA200 Electric Propulsion System from Bellatrix
- DSOD-3U and DSOD-6U deployer units along with DSOL-Transceiver in S- & X- bands from Dhruva Space
- Starberry Sense Payload from Indian Institute of Astrophysics

The PSLV-C55 mission is a dedicated commercial mission through NSIL. TeLEOS-2 and Lumelite-4 satellites are intended to be launched into an eastward low inclination orbit.

ISRO said that the TeLEOS-2 satellite is developed under a partnership between DSTA (representing the government of Singapore) and ST Engineering. Once deployed and operational, it will be used to support the satellite imagery requirements of various agencies within the government of Singapore. TeLEOS-2 carries a Synthetic Aperture Radar (SAR) payload. TeLEOS-2 will be able to provide all-weather day and night coverage, and be capable of imaging at 1m full-polarimetric resolution.

Lumelite-4 satellite is co-developed by the Institute for Infocomm Research (I²R) of A*STAR and by the Satellite Technology and Research Centre (STAR) of the National University of Singapore. Lumelite-4 is an advanced 12U satellite developed for the technological demonstration of the high-performance space-borne VHF Data Exchange System (VDES). Using the VDES communication payload developed by I²R and STAR's scalable satellite bus platform, Lumelite-4 aims to augment Singapore's e-navigation maritime safety and benefit the global shipping community.

<https://www.thehindu.com/sci-tech/science/pslv-c55-mission-isro-to-carry-out-in-orbit-scientific-experiments-using-spent-ps4/article66758527.ece>



Thu, 20 Apr 2023

SpaceX's Next-Generation Rocket Starship Explodes during First Test-Flight

SpaceX's Starship, the world's biggest rocket, exploded during its first test-flight to space on April 20 from Boca Chica in Texas. The next-generation rocket, which was designed to send astronauts to Moon, Mars and beyond was launched at 8:33 am Central Time (1333 GMT) from Starbase on a planned 90-minute debut flight into space.

While the liftoff was successful, the giant rocket ended in explosion nearly four minutes after liftoff. Elon Musk's company SpaceX said that Starship experienced a rapid unscheduled disassembly before stage separation and their teams will continue to review data and work towards the next flight test.

As if the flight test was not exciting enough, Starship experienced a rapid unscheduled disassembly before stage separation

— SpaceX (@SpaceX) April 20, 2023

SpaceX CEO Elon Musk congratulated the team in a tweet on ‘an exciting test launch of Starship’ and said that he has learned a lot for Starship’s next launch in a few months.

pic.twitter.com/vX3M7B3J1G

— Elon Musk (@elonmusk) April 20, 2023

On April 17, the debut launch of the uncrewed flight was called off just minutes before the scheduled launch time (08:20 local time) after a pressurant valve seemed to be frozen in the booster stage.

The U.S. space agency NASA has picked the Starship spacecraft to ferry astronauts to the Moon in late 2025 — a mission known as Artemis III — for the first time since the Apollo program ended in 1972.

Starship consists of a 164-foot (50-metre) tall spacecraft designed to carry crew and cargo that sits atop a 230-foot tall first-stage Super Heavy booster rocket. Collectively referred to as Starship, the spacecraft and the Super Heavy rocket have never flown in combination together, although there have been several sub-orbital test flights of the spacecraft alone.

SpaceX conducted a successful test-firing of the 33 Raptor engines on the first-stage booster of Starship in February.

The Super Heavy booster was anchored to the ground during the test-firing, called a static fire, to prevent it from lifting off.

NASA will take astronauts to lunar orbit itself in November 2024 using its own heavy rocket called the Space Launch System (SLS), which has been in development for more than a decade.

Starship is both bigger and more powerful than SLS.

It generates 17 million pounds of thrust, more than twice that of the Saturn V rockets used to send Apollo astronauts to the Moon.

SpaceX foresees eventually putting a Starship into orbit, and then refueling it with another Starship so it can continue on a journey to Mars or beyond.

Mr. Musk said the goal is to make Starship reusable and bring down the price to a few million dollars per flight.

Starship is the largest, most capable rocket ever developed and will allow us to achieve a shared vision of a future where humanity is out exploring stars → <https://t.co/gOrrujHxMO>pic.twitter.com/pmrpmivsWZ

— SpaceX (@SpaceX) April 20, 2023

"In the long run — long run meaning, I don't know, two or three years — we should achieve full and rapid reusability," he said.

The eventual objective is to establish bases on the Moon and Mars and put humans on the "path to being a multi-planet civilization," Mr. Musk said.

"We are at this brief moment in civilization where it is possible to become a multi-planet species," he said. "That's our goal. I think we've got a chance."

<https://www.thehindu.com/sci-tech/science/spacexs-next-generation-rocket-starship-explodes-during-first-test-flight/article66760285.ece>

'Big News' is India's Population Growth is below Replacement Level: UN Expert

While India's population at 1.4 billion has surpassed that of China's, the "latest big news" is that the population growth is below the replacement fertility rate in India and it has a "window of opportunity", according to Rachel Snow, the lead demographer of the UN Population Fund (UNFPA). The continued trajectory for India is that while the young population entering the reproductive phase will boost overall fertility, "given the fertility pattern already evident, we can start to anticipate the decline, the plateauing and decline", she said on Wednesday.

The replacement fertility rate is the average number of children a woman must have to keep the population steady and it is considered to be 2.1 children per woman.

The replacement fertility rate for India is 2, with wide variations within the country -- between 1.6 for Punjab and West Bengal, and 3 for Bihar among the large states, according to Indian government data.

"You've got this big bulge of young people entering both reproductive years which means fertility will keep growing, but (also) entering the age of life for working," she said, giving India a "window of opportunity".

The question for India is that with this "window of opportunity", will it be "able to mobilise the necessary investments in education and job creation, in gender equality, so that there will be an opportunity for that large population to indeed yield a dividend for the economy", she said.

Snow gave the example of the Asian Tigers -- mainly Taiwan, South Korea and Singapore -- that had a tremendous spurt in economic growth, which also led to better living standards.

"In the 70s and 80s, the Asian Tigers had an extraordinary economic growth because there was major investment in the health, education, the well being of that cohort of young people who then were able to boost the economy."

The challenges for India, she said, are "there's so many people that are in the informal labour market. Again, educational standards are highly uneven -- if you go north to south, south to north in India, we see tremendous diversity within such a large country".

Snow was briefing reporters about the UNFPA's annual report, which is titled, "8 Billion Lives, Infinite Possibilities: The Case for Rights and Choices".

She said that the population issue should not be seen solely in terms of numbers and goals, but the as to how women are able to freely make their own reproductive choices.

She said that 44 per cent of partnered women and girls do not have the right to make decisions on having children or not.

About 257 million women do not have access to safe, reliable contraception, she added.

<https://economictimes.indiatimes.com/news/india/big-news-is-indias-population-growth-is-below-replacement-level-un-expert/articleshow/99629102.cms>

