

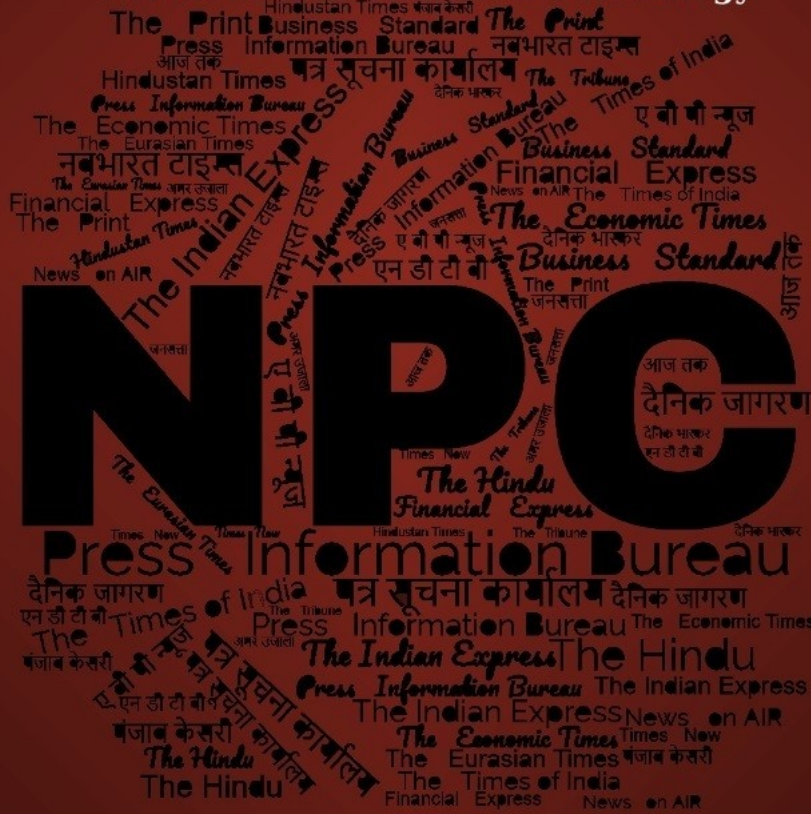
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# समाचार पत्रों से चयनित अंश Newspapers Clippings

डीआरडीओ समुदाय को डीआरडीओ प्रौद्योगिकियों, रक्षा प्रौद्योगिकियों, रक्षा नीतियों, अंतर्राष्ट्रीय संबंधों और विज्ञान एवं प्रौद्योगिकी की नूतन जानकारी से अवगत कराने हेतु दैनिक सेवा

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Press Information Bureau  
Government of India

Ministry of Defence

*Thu, 29 Aug 2024*

### **Second Arihant-Class submarine ‘INS Arighaat’ commissioned into Indian Navy in the presence of Raksha Mantri in Visakhapatnam**

Arighaat’ to further strengthen India’s nuclear triad, enhance nuclear deterrence, establish strategic balance & peace and play a decisive role in the country’s security: Shri Rajnath Singh  
“PM Modi-led Govt is working on mission mode to equip soldiers with top-quality weapons & platforms”

The second Arihant-Class submarine ‘INS Arighaat’ was commissioned into the Indian Navy on August 29, 2024 at Visakhapatnam in the presence of Raksha Mantri Shri Rajnath Singh. In his address, the Raksha Mantri exuded confidence that ‘Arighaat’ will further strengthen India’s nuclear triad, enhance nuclear deterrence, help in establishing strategic balance & peace in the region, and play a decisive role in the security of the country. He described it as an achievement for the nation and a testament to Prime Minister Shri Narendra Modi-led Government’s unwavering resolve to achieve ‘Aatmanirbharta’ in defence.

Shri Rajnath Singh commended the Indian Navy, DRDO & the Industry for their hard work and synergy in achieving this capability. He termed this self-reliance as the foundation of self power. He appreciated the fact that the country’s industrial sector, especially MSMEs, have received a huge boost through this project, and more employment opportunities have been created.

Recalling former Prime Minister Shri Atal Bihari Vajpayee’s political will which put India at par with a nuclear weapon state, the Raksha Mantri said, “Today, India is surging ahead to become a developed country. It is essential for us to develop rapidly in every field, including defence, especially in today’s geopolitical scenario. Along with economic prosperity, we need a strong military. Our government is working on mission mode to ensure that our soldiers possess top-quality weapons and platforms made on Indian soil” .

The construction of INS Arighaat involved the use of advanced design and manufacturing technology, detailed research & development, utilisation of special materials, complex engineering and highly skilled workmanship. It has the distinction of having the indigenous systems and equipment which were conceptualised, designed, manufactured & integrated by the Indian scientists, industry and Naval personnel.

The technological advancements undertaken indigenously on this submarine make it significantly more advanced than its predecessor Arihant. The presence of both INS Arihant and INS Arighaat will enhance India's capability to deter potential adversaries and safeguard its national interests.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2049870>



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

**Ministry of Defence**

*Thu, 29 Aug 2024*

## **First indigenously developed Pollution Control Vessel of ICG, 'Samudra Pratap' Launched in presence of Raksha Rajya Mantri in Goa**

**The country must become fully Atmanirbhar in defence  
production: RRM**

Raksha Rajya Mantri Shri Sanjay Seth urged industry partners to work for the country to become not only fully Self-sufficient (Aatmanirbhar) in defence production but also a net exporter. He was speaking on occasion of launching of the first indigenously built Pollution Control Vessel (Samudra Pratap) in Goa on 29th August 2024. The Ship has been built by Goa Shipyard Limited (GSL) for the Indian Coast Guard (ICG). The vessel will help to check the oil spillage in the country's sea coast. The ship was launched and named as 'Samudra Pratap' by Smt Neeta Seth, in presence of Shri Sanjay Seth, Raksha Rajya Mantri.

Raksha Rajya Mantri said that the country has become the fifth largest economy of the world under the visionary of leadership of Prime Minister Shri Narendra Modi. It is heartening to note that the country has become Aatmanirbharta in ship building for defence needs and started building ships for other countries, he added.

GSL, a premier Indian Shipyard, signed a contract for constructing two Pollution Control Vessels for Indian Coast Guard at a cost of Rs 583 Crores. It is for the first time that these vessels are being designed and constructed indigenously. The ship has been designed and constructed in-house by Goa Shipyard Ltd to meet the specific requirements of ICG. The ship has a length of 114.5m, breadth of 16.5m and would displace 4170 T. The Keel laying ceremony of the ship was held on 21 Nov 2022.

The launching ceremony was attended by Shri Brajesh Kumar Upadhyaya, Chairman and Managing Director, GSL along with officials from the Ministry of Defence, ICG, Indian Navy and Goa Shipyard Ltd.



‘Samudra Pratap’ is an exemplary testimony of the nation's ship building capabilities and propels Goa Shipyard Limited into the league of Indian Shipyards capable of producing state-of-art Pollution Control Vessels.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2049860>



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

**Ministry of Defence**

*Thu, 29 Aug 2024*

## **12th India – South Africa Navy Staff Talks**

The 12th India-South Africa Navy Staff Talks were held in New Delhi on **27 – 28 August 2024**, further strengthening Navy-to-Navy collaboration between the two nations. Co-chaired by Rear Admiral Nirbhay Bapna, ACNS (FCI) of the Indian Navy, and Rear Admiral David Maningi Mkhonto, Chief Director Maritime Strategy of the South African Navy, the talks underscored mutual commitment to strengthening naval ties and operational synergy.

In laying the groundwork for future cooperation, the talks this year focused on several pivotal areas, including operational training at improving readiness and efficiency; and the establishment of secure information exchange protocols between platforms. Additionally, the talks explored operational interactions to address the evolving complexities in the maritime domain, through continued exchanges and exercises, such **IBSAMAR (India-Brazil-South Africa Maritime Exercise)**.

The dialogue included opportunities for exchange of best practices in Nuclear, Biological, Chemical Defence including Damage Control (NBCD); and Diving support, through **Subject Matter Expert Exchanges (SMEE)**. A strong emphasis on personnel exchanges, and the potential for availing advanced training courses at respective training facilities were also deliberated.

The ongoing dialogue exemplifies a shared vision for Maritime Security and operational collaboration, and serves as a platform for fostering deeper cooperation between the South African Navy and the Indian Navy.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2049741>

## **THE TIMES OF INDIA**

*Fri, 30 Aug 2024*

### **Amid China standoff, India set to boost naval power with 3rd N-sub in 6 months**

India plans to commission its third nuclear-powered ballistic missile submarine (SSBN) in another six months to further bolster its sea-based leg of the nuclear weapons triad, after the second such boat was formally inducted into the Strategic Forces Command as INS Arighaat at Visakhapatnam on Thursday.

The third SSBN, which is now undergoing trials ahead of her commissioning as INS Aridhaman early next year, is slightly bigger than the first two, INS Arihant and INS Arighaat, and consequently capable of carrying more long range nuclear-tipped missiles.

Significantly, INS Arighaat is also capable of carrying some K-4 missiles, which have a strike range of over 3,000-km, unlike her forerunner INS Arihant that is armed only with the 750-km range K-15 missiles, sources told TOI.

This is crucial for credible strategic deterrence amid the continuing military confrontation with China. Capable of staying submerged for months on end, SSBNs are the most secure, survivable and stealthy platforms for second-strike capabilities, which in turn deter an adversary from launching a surprise first strike.

The commissioning of INS Arighaat, which has a 6,000-tonne displacement and four silos on its 'hump' for the vertical launch of missiles, was conducted at the secretive ship-building centre in Vizag, with defence minister Rajnath Singh, chief of defence staff General Anil Chauhan, Navy chief Admiral Dinesh Tripathi and DRDO chief Samir Kamat in attendance.

"INS Arighaat will further strengthen India's nuclear triad, enhance nuclear deterrence, help in establishing strategic balance and peace in the region, and play a decisive role in the country's security," Singh said.

Recalling former PM Vajpayee's 'political will' that put India on a par with nuclear weapon states by conducting the Pokhran-II tests in 1998, Singh said, "It is essential for us to develop rapidly in every field, including defence, especially in today's geopolitical scenario. Along with economic prosperity, we need a strong military.

Our government is working on mission mode to ensure that our soldiers possess top-quality weapons and platforms made on Indian soil." Indigenous technological improvements on INS Arighaat make it "significantly more advanced" than its predecessor Arihant, which became fully operational in 2018.

"The two together will enhance India's capability to deter potential adversaries and safeguard its national interests. INS Arighaat's hull and size may be the same as INS Arihant but she is a much more capable version with lot of internal engineering upgrades," an official said.

INS Aridhaman and the fourth under-construction SSBN, in turn, will be even more potent. With a 7,000-tonne displacement and 125-metre long, they will be able to carry a larger number of K-4 missiles.

The four submarines, built under the classified advanced technology vessel (ATV) project launched in the 1990s at a cost of over Rs 90,000 crore, are of course less than half the size of the SSBNs of countries like the US, China and Russia.

China has six Jin-class SSBNs, with 10,000-km range JL-3 missiles, apart from six nuclear-powered attack submarines (called SSNs, meant conventional warfare). The US, in turn, has 14 Ohio-class SSBNs and 53 SSNs. India is also working on a plan to eventually build 13,500-tonne SSBNs with much more powerful 190 MW reactors.

Parallely, as was reported by TOI earlier, a Rs 40,000 crore project to indigenously construct two 6,000-tonne 'hunter-killer' SSNs, armed with torpedoes, anti-ship and land-attack missiles, is now before the PM-led Cabinet Committee on Security for the final nod after repeated iterations and inter-ministerial consultations. It will take at least a decade to construct them.

<https://timesofindia.indiatimes.com/india/amid-china-standoff-india-set-to-boost-naval-power-with-3rd-n-sub-in-6-months/articleshow/112905487.cms>

## **India, China hold 31st WMCC meeting, vow to maintain peace along Line of Actual Control**

India and China on Thursday held the 31st meeting of the Working Mechanism for Consultation & Coordination on India-China Border Affairs (WMCC) in Beijing.

Gourangalal Das, Joint Secretary (East Asia), from the Ministry of External Affairs headed the Indian delegation. Hong Liang, Director General of the Boundary and Oceans Department of the Chinese Ministry of Foreign Affairs led the Chinese delegation.

Das also called on the Vice Minister of Chinese Foreign Ministry Hua Chunying. The two sides had a frank, constructive and forward-looking exchange of views on the situation along the Line of Actual Control (LAC) to narrow down the differences and find early resolution of the outstanding issues.

This was in line with the guidance provided when the two foreign ministers met in Astana and Vientiane in July. For this, they further agreed for intensified contact through diplomatic and military channels, said the Ministry of External Affairs.

The two sides jointly agreed to uphold peace and tranquility in the border areas, in accordance with relevant bilateral agreements, protocols and understandings between the two governments. It was agreed upon that peace and respect for the LAC was an essential to restore normalcy in the bilateral relations between India and China.

<https://economictimes.indiatimes.com/news/defence/india-china-hold-31st-wmcc-meeting-vow-to-maintain-peace-along-line-of-actual-control/articleshow/112902312.cms>



## **Phase 2 of multinational air exercise Tarang Shakti starts tomorrow in Jodhpur**

Setting the stage for participating countries to showcase their military prowess in the Indian skies, the second phase of the Tarang Shakti exercise is set to begin in Rajasthan's Jodhpur on Friday. Tarang Shakti, the largest multinational air exercise hosted by India, will be held from August 30 to September 14, with the daredevil stunts of fighter jets from Australia, US, Greece, Bangladesh, Singapore, and the UAE highlighting the event, officials said.

Air forces from a total of 10 countries are participating with their assets while others are a part of Tarang Shakti as observers. Australia's F-18, Bangladesh's C-130, Greece's F-16, and the USA's A-10 and F-16 will be showcasing their capabilities in Indian skies.

Host India will be showcasing a range of its advanced military assets, including the LCA Tejas, Su-30 MKIs, and Rafales, during the exercise. The Indian Air Force will also participate with Sukhoi,

Mirage, Jaguar, MiG-29, Prachand and Rudra attack helicopters, ALH Dhruv, C-130, IL-78, and AWACS assets.

The Tarang Shakti 2 is more significant in terms of Greece's first-ever participation in a military exercise in India. It is a reciprocal gesture by Greece as India had sent its Su-30MK fighter jets to participate in the Iniochos exercise hosted by Greece in April 2023, as a mark of strengthening military relations between the two countries.

Additionally, Bangladesh's confirmation to participate in Tarang Shakti Phase 2 is particularly noteworthy, given the recent political upheaval following the ouster of the country's former Prime Minister Sheikh Hasina. This participation underscores Bangladesh's continued commitment to regional security cooperation despite domestic political shifts.

With over 18 nations participating and around 67 fighter jets involved, Tarang Shakti 2024 emphasises India's growing role as a key player in fostering multinational defence cooperation and enhancing interoperability among the participating air forces. Meanwhile, Air Force chiefs of the participating countries will also be present during the exercise. The first phase of Tarang Shakti was conducted in Sullur during August 6 to 14 with France, Germany, Spain, and the UK participating in the air exercise.

<https://www.indiatoday.in/india/story/tarang-shakti-phase-2-air-exercise-jodhpur-rajasthan-indian-air-force-australia-us-greece-2590186-2024-08-29>

## THE ECONOMIC TIMES

Thu, 29 Aug 2024

### **Tech Mahindra, Marshall ink pact to drive advancement in aerospace, defense engineering**

IT major Tech Mahindra on Thursday said it has inked a pact with UK-based engineering service provider Marshall Group to combine their digital solutions and engineering capabilities to spur advancements in aerospace and the defence industry.

Tech Mahindra in a statement said it will assist Marshall's engineering programmes in aircraft design and manufacture, special mission platforms, and the development of digital maintenance, repair, and overhaul (MRO) technologies. Marshall will also make use of Tech Mahindra's suite of data analytics and intelligent field support technologies to enhance its infrastructure solutions' operational efficiency and reliability.

"Combining Tech Mahindra's global engineering and technology capabilities with Marshall's rich heritage and specialised knowledge, we are poised to create a powerful collaboration to drive innovation, deliver exceptional customer value, and enable the industry to scale at speed," Narasimham R V, President, Engineering Services, Tech Mahindra, said.

Tech Mahindra will also engage in developing future hydrogen fuel systems, aiming to replace fossil fuels and promote sustainability in aviation, the statement said. Shares of Tech Mahindra were trading 0.67 per cent higher at Rs 1,638.30 apiece in intra-day trade on the BSE on Thursday.

<https://economictimes.indiatimes.com/news/defence/tech-mahindra-marshall-ink-pact-to-drive-advancement-in-aerospace-defense-engineering/articleshow/112901774.cms>



## India's quest for small arms continues, with some twists and turns and heartburn along the way

A formidable military power that just commissioned its second locally built nuclear powered ballistic missile submarine, India is struggling to equip its military personnel with even the most basic of defence items—the humble rifle.

Such is the state that even if all the modernisation programmes being pursued by the Army for over a decade and half come to fruition, its soldiers will be using at least three different types of rifles and carbines—all of different calibre.

The Indian Army's fresh order for 73,000 SIG 716 G2 patrol assault or battlefield rifles, chambered for 7.62×51 mm rounds, from the US firm SIG Sauer has opened up a Pandora's box, with several including indigenous arms manufacturer criticising it for continued imports and failure to hand hold the industry and promote them.

This comes even as domestic arms manufacturers have now started exporting snipers and assault rifles.

In a rare public outcry, Vivek Krishnan, CEO of Bengaluru-based small arms manufacturer SSS Defence, went public saying he wished “the government had not acquired more of these”.

He was referring to the SIG Sauer order, which is a follow-on of an earlier order made in 2019 under a fast tracked process through which the Army had bought 72,000 of these American rifles.

Krishnan said that a private solicitation and insistence on Indian design and content would have easily thrown up a contender, or many in fact. Testing the same against the in service system would have been rather easy, he added.

In 2020, ThePrint had reported that Indian small arms manufacturers were unhappy with the Army's plan to re-order SIG Sauer rifles.

While there were no Indian products to be considered in 2018, multiple private companies had entered the small arms industry by 2020 and set up factories and plants either on their own, or through tie-ups with foreign firms.

Sources in the defence establishment explained that while companies claim that they have an indigenous product, it is not so. They added that companies are not able to deliver the quantity that is required since their rate of production capability is less.

The sources explained that in trials being done for other small arms, the companies have sought repeated extensions to submit rifles for consideration.

As the controversy brews, ThePrint takes a look at various programmes being run by the Army for small arms, and the twists and turns with them.

### India's quest for rifles

Way back in 2007, the Indian Army's Infantry Directorate decided to move away from the 5.56X45 mm INSAS (Indian Small Arms System) rifle based on feedback from the ground troops and experiences from the 1999 Kargil War.

The global and the Indian arms companies have largely been frustrated with the Indian Army's small arms programmes under which it keeps changing requirements, including the calibre (the diameter of the bullet or the barrel).

As mentioned earlier, the Army has failed to standardise on a single calibre for its rifles that has resulted in at least three different calibres (7.62×51 mm, 7.62×39 mm, and 5.56×45 mm) and multiple weapons.

Globally, militaries have largely stuck to one or at most two calibre as a standard. For example, the US military, which has seen the most number of conflicts since World War 2, has changed its rifle calibre and standard-issue rifle just twice since then.

The standard issue shoulder weapon to the American military is the M16A4, which is a modern version of the rifle that was introduced in the 1960s.

As for India, the Army did its own study and eventually came out with a tender in 2011. This tender confused small arms manufacturers across the world because the Army wanted a dual-calibre rifle chambered for two types of ammunition—7.62×39 mm and 5.56×45 mm.

This tender was eventually withdrawn in 2015, but this meant 8 years of planning went down the drain.

Another attempt was made in 2015, to buy modified INSAS 1C rifles. However, this was scrapped in August 2016 when the Army decided to go for a battle rifle chambered for the heavier 7.62×51 mm round.

In the meanwhile, India and Russia initiated talks at government-level to jointly manufacture the AK 103 rifle with 7.62×39 mm calibre. This rifle is the modernised version of the iconic Russian AK 47 rifle developed by General Mikhail Kalashnikov in 1947.

This deal was being pursued when the Ordnance Factory Board was already manufacturing cheaper AK-47 clones—the Trichy Assault Rifle (TAR), and the Ghatak.

Then in 2018 under the then defence minister Nirmala Sitharaman, a decision was taken to jointly manufacture the AK 203, a small upgrade of the AK 103. It is only this year that the India-Russia joint venture has delivered the first initial lot of AK 203 with bare minimum indigenous content to the Indian Army.

In 2018, the Army decided to pursue its original plan to go in for the battle rifle with the heavier 7.62×51 mm round. Incidentally, the INSAS was introduced to replace the 5.1 kg Ishapore 7.62×51 mm rifle which was used by soldiers in the Siachen battle and against the Liberation Tigers of Tamil Eelam (LTTE) in Sri Lanka.

### **SIG Sauer in Indian Army**

When the Army started the process to acquire a 7.62×51 mm rifle starting in 2018, it decided to pursue the deal under fast tracked procurement (FTP) process. It capped the number of this rifle at 1.4 lakh to equip its frontline soldiers, while the rest were to get the AK 203s. Accordingly, an empowered committee was formed by the Army which went to multiple countries to check out weapons. Since this was an FTP, no trials were done.

Several rifles were examined by the committee, which eventually chose the SIG 716, according to the sources. One of the main reasons for the selection of the American rifle was the price, they said. It is understood that the American company had a large number of these rifles in their inventory and had offered a cheaper price than what other companies were asking for.

Accordingly, a deal was inked in 2019 for 72,400 SIG 716 rifles—66,400 for the Army, 4,000 for the Air Force and 2,000 for the Navy. The Army decided that it would go for a follow-on order for an additional 73,000 rifles. But, the follow-on order got delayed with the government’s push against imports.

In 2022, ThePrint reported that contrary to certain media reports, the follow-on order for the SIG Sauer rifles was on track. The defence sources explained that the follow-on order for the American rifles was already decided and that it just took some extra time. The original plan was to induct 1.4 lakh SIG 716 rifles and the rest of the Army’s requirement was to met by the AK 203s being produced in India. “So, it is wrong to say that the Indian Army is going in for imports. All other programmes like that for light machine guns, snipers, and carbines are for Indian companies,” one of the defence sources said.

The sources explained that way back in 2018, there was no Indian company making such rifles in the country. Though an indigenous weapon system is available now, they said that the Army cannot function with 72,000 of one system and 73,000 of another.

### **The carbine saga**

The Army’s quest for close quarter battle (CQB) carbines—a project initiated in 2008 to replace the outdated and ageing British Sterling submachine gun—is still being pursued with field trials taking place at the moment. As the Research and Development Organisation (DRDO) and the OFB failed to meet the Army’s requirements, a global tender for procurement of 44,618 CQB carbines was issued in 2011.

While Israel Weapon Industries (IWI), Italian Beretta, and American firms Colt and SIG Sauer participated in the tender, only IWI qualified as the other contenders could not meet the qualitative requirements with regard to the night vision mounting system. However, the deal did not go through because of a single vendor case, which, according to the government’s procurement manual, is not allowed.

In 2017, a global Request for Information (RFI)—a process initiated to gather information on what is available in the market—was issued for the purchase of 2 lakh carbines, while a separate process was rolled out to procure 93,895 under FTP. UAE’s Caracal had emerged as the lowest bidder in the FTP process, but the contract for its CAR 816 ran into rough weather over various issues, including costs and complaints from other bidders.

In 2020, ThePrint reported that the government had decided to scrap the project altogether. The Army has now initiated a Make in India programme under which 4.25 lakh carbines are to be procured for its personnel. The companies in contention include PLR of the Adani Group, Jindal, Kalyani Group and two others, including ICON, which has tied up with Caracal.

SSS Defence could not make it into the list because it could not meet the minimum financial markings that were needed, it is learnt. The sources indicated that PLR, which now manufactures the Galil Ace in India, and Caracal are the strong contenders.

### **Sniper rifles**

The other programme that the Indian Army is pursuing is for the procurement of 4,500 sniper rifles. The companies in contention are SSS Defence, PLR and Kalyani Group. However, the trials are yet to start.

### **LMGs**

The Army is also pursuing a programme to procure 41,000 light machine guns (LMGs), under the ‘Make in India’ initiative. These would be the 7.62X51 mm belt-fed LMGs, to replace the

5.56x45mm INSAS LMG. Adani Group's PLR systems, which is a joint venture with the IWI, is the frontrunner with their Negev NG 7. The IWI had already won a fast-tracked procurement contract from the Army for about 16,000 Negev NG 7s and delivered them.

Incidentally, the Army contract was directly with IWI and not with the Indian joint venture, which now manufactures various Israeli weapons at its Gwalior plant.

<https://theprint.in/defence/indias-quest-for-small-arms-continues-with-some-twists-and-turns-and-heartburn-along-the-way/2243854/>



*Thu, 29 Aug 2024*

## **Bangladesh Seeks to Boost Defense Capabilities with Artillery Ammunition from Pakistan**

Bangladesh is slowly regaining its footing after a tumultuous month marked by widespread protests, high-profile resignations, and violent clashes. The unrest, which erupted in early July, culminated in the departure of Prime Minister Sheikh Hasina from the country in early August. However, with the situation now showing signs of stability, the nation is gradually returning to normalcy.

Pakistani Prime Minister Shahbaz Sharif has extended an olive branch to Bangladesh's newly appointed interim government, led by Nobel laureate Muhammad Yunus, expressing his eagerness to collaborate and enhance bilateral cooperation between the two nations. The departure of Sheikh Hasina, who ruled Bangladesh for 15 years, has brought a glimmer of hope to Islamabad for a potential thaw in relations between the two nations. Throughout Hasina's tenure, Bangladesh-Pakistan ties remained strained, but the recent change in leadership in Dhaka has rekindled optimism for a reset. Many believe that Hasina's ouster has created a window of opportunity for both countries to re-establish and normalize their relations, paving the way for a new chapter in bilateral cooperation.

In a significant development following the departure of Sheikh Hasina, establishment in Indian government have learnt that Bangladesh is set to receive a substantial shipment of defence materials from Pakistan, including 40,000 rounds of ammunition, Tank ammunition 2000 quantity, 40 tons of RDX explosive in wax consistency, and 2,900 high-intensity projectiles. This represents a significant increase from the previous year's order, which included 12,000 rounds of ammunition.

This is not the first instance of Pakistan supplying ammunition to Bangladesh, the current order is notably larger than previous ones. According to details, the shipment is scheduled to take place in three phases, commencing in the first week of September 2024 and concluding by December 2024. A letter from the General Manager Exports of Pakistan Ordnance Factory (POF) has revealed details of supplementary defence exports to Bangladesh. The correspondence, addressed to the Managing Directors of various POF divisions, including Havelian, Sanjwal, and Gadwal, outlines the specifics of the additional defence stores to be exported. This move indicates Bangladesh's efforts to enhance its defense capabilities and potentially signals a strengthening of ties with Pakistan under the new leadership.

A sinister plot is unfolding in Bangladesh, aimed at perpetuating anti-India sentiment and jeopardizing the harmonious relationship between the two nations. Bangladesh has witnessed a surge in open anti-India hostility. The situation has been exacerbated by the recent flooding in Feni, which locals attribute to India's alleged release of dam water from Tripura without prior notice, leading to catastrophic consequences. Followed by, a protest erupted outside the Indian Visa Application Centre in Satkhira on August 26, as hundreds of Bangladeshi visa applicants took to the streets. The demonstration was prompted by the failure of many to receive their visas, despite waiting for hours in long, winding queues.

Protests in Bangladesh led to the departure of Prime Minister Sheikh Hasina on August 5, Jamaat-e-Islami was reportedly involved, with its student wing, Islami Chhatra Shibir (ICS), playing a significant role in expanding the protests beyond quota reform. Some observers believe this development presents an opportunity for Pakistan to re-engage with Bangladesh. The change in government has significant implications for regional stability and geopolitical dynamics, potentially leading to shifts in alliances and influence in South Asia.

### **India-Bangladesh**

India and Bangladesh are connected by a rich tapestry of shared history, language, culture, and numerous other commonalities. Given their extensive 4,000 km border and inherent geographic proximity, India will continue to be a vital regional ally and business partner for Bangladesh, fostering a strong and enduring relationship between the two nations.

Muhammad Yunus, the leader of Bangladesh's interim government, and Indian Prime Minister Narendra Modi have engaged in a productive conversation, pledging to foster a strong collaborative relationship. Further solidifying this commitment, Bangladesh's Foreign Affairs Advisor, Touhid Hossain, stated on August 14 that the interim government is eager to work closely with India to enhance bilateral ties.

The recent developments in Bangladesh have far-reaching implications for India, extending beyond the political sphere to the economic domain as well. The shift in Bangladesh's political landscape is likely to have significant consequences for India's economic interests, trade relationships, and regional influence.

<https://www.financialexpress.com/business/defence-bangladesh-seeks-to-boost-defense-capabilities-with-artillery-ammunition-from-pakistan-3595546/>



*Thu, 29 Aug 2024*

## **Immune To UAV Attacks – Russia Claims Its ‘Heavy Duty’ T-80BVM Tanks Superior To US Abrams, German Leopards**

Russia's state-owned Rostec corporation has asserted that its T-80BVM tanks are virtually invulnerable to drone attacks featuring cumulative warheads, attributing this to the tanks' extensive protective enhancements. The T-80BVM tanks, produced by Omsktransmash, a division of the Uralvagonzavod concern and a subsidiary of Rostec, are distinguished by their comprehensive array of protective features.



These include mesh screens and nets designed to shield the engine compartment and the rear turret area from cumulative grenades, guided missiles, and first-person view (FPV) drones. In addition to these features, recent upgrades have seen the installation of a module designed to protect the upper turret, known colloquially as the “barbecue.”

According to Rostec, the T-80BVM’s protective measures are designed to provide near-complete coverage from all angles. The tanks are equipped with an array of defensive features, including a specialized “barbecue” module that shields the upper turret and double side screens with active protective elements that guard the fenders.

The tank’s frontal hull and turret are described as “completely indestructible,” while the “Cape” system further diminishes the tank’s thermal, radar, and visual signatures. Rostec explained that these advancements are a direct response to combat experiences. The corporation pointed out that the current level of protection on Russian tanks leaves minimal vulnerabilities that drones carrying cumulative warheads could exploit.

“As a result, domestic vehicles have almost no weak points where they can be hit by a drone carrying a cumulative warhead, which cannot be said about the tanks of the Armed Forces of Ukraine, especially Western ones,” Rostec said. The tanks also benefit from unbreakable idler protection and dynamic armor that triggers explosive charges at a distance from the main armor, thereby preserving the vehicle’s integrity during explosions.

Rostec’s statements emphasize the continuous efforts to advance tank defense systems in response to contemporary warfare challenges, demonstrating Russia’s dedication to bolstering the resilience of its armored vehicles.

### **Superior Protection Compared To Western Tanks?**

The ongoing conflict has demonstrated that even small-sized FPV drones can severely damage armored vehicles, a threat both sides have faced in the Russian-Ukrainian war. In fact, despite their reputation for advanced capabilities, American Abrams and Bradleys, German Leopards, and Russia’s T-90M have demonstrated susceptibility to strikes from low-cost, one-way drones. These relatively low-cost drones, often priced at just a few hundred dollars, have disabled high-end armored vehicles valued in the millions.

During the early phase of the war, such incidents were rare and surprising, but they have now become a regular feature of modern warfare. To counter these threats, many tanks are now equipped with large, welded “coke cages” designed to deflect or withstand drone attacks. While early versions of these protective structures seemed crude and offered limited effectiveness, more recent iterations have been improved, featuring stronger and more sophisticated designs to provide enhanced defense against these low-cost yet dangerous threats.

These experiences have allowed Russian defense manufacturers to enhance the protection of their tanks. Rostec claimed that the upgraded T-80BVM offers superior defense compared to all Ukrainian tanks, including those supplied by Western allies.

Furthermore, unlike the earlier makeshift solutions that were hastily welded onto the tank’s hull and turret in frontline repair workshops or even by soldiers directly on the battlefield, factory-produced versions of this protective gear offer several key advantages. These include a more robust and reinforced design and, crucially, the ability to allow the crew to evacuate safely if the tank is compromised.

According to Russian media, the modernization of Soviet-era T-80 tanks at Omsktransmash started several years before the current conflict. Since February 2022, the facility has significantly ramped up production and is operating around the clock.

Earlier, Rostec challenged the notion of Western military technology superiority, specifically regarding the Abrams tank. Sergey Chemezov, Rostec's general director, criticized the myth of Western technological dominance, pointing out that many Western tanks, such as Leopards, Challengers, and Bradleys, have been damaged or destroyed on the battlefield as evidence of Russian capabilities.

Rostec also addressed the destruction of an Abrams tank, dismissing the belief in its invincibility. They highlighted that the T-80, being smaller and more agile than the Abrams, offers a better power-to-weight ratio and is equipped with a larger caliber gun. The T-80BVM features a powerful gas turbine engine, which enhances its off-road performance in extreme conditions.

It also boasts new and improved features, including a modern communication system with a range of up to ten kilometers, enhanced protection, and additional armor modules designed to withstand attacks from FPV drones, anti-tank guided missiles (ATGMs), and rocket-propelled grenades (RPGs).

<https://www.eurasiantimes.com/immune-to-uav-attacks-russia-claims-its/>

## Science & Technology News



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

**Ministry of Science & Technology**

*Thu, 29 Aug 2024*

### **Rare electron localization phenomena demonstrated, can expand scope of semiconductors**

Researchers have unveiled a rare type of electron localization phenomenon that can increase the options for material choices and can be used either to improve the existing performances of semiconductors or expand their applications in areas like lasers, optical modulators, and photoconductors. Anderson Localization of elementary quasiparticles like electrons, photons, and phonons in disordered and amorphous semiconductors, proposed by American theoretical physicist P W Anderson, is an intriguing phenomenon in solid-state physics. It occurs when doping and impurities lead to the absence of conduction in metals or semiconductors.

As a result of doping and impurities, the electrons that otherwise used to travel from a region of high potential to one of low potential in a conducting material, become confused and roam around the doped or the impurity centers. It leads to transition of a -conductor to insulator called Anderson transition. In contrast to the traditional view of Anderson localization, which emphasizes the importance of geometric or topological defects like vacancies or dislocations (where electrons do not flow) in lattices, theoretical physicists Boris I. Shklovskii and Alex L. Efros proposed that potential fluctuations caused by random distributions of charged dopants could also induce a metal-insulator transition, known as the quasiclassical Anderson transition. Despite decades of effort, direct experimental verification of this phenomenon has remained elusive.

In a significant discovery, researchers at Bengaluru's Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), an autonomous institute of Department of Science and Technology (DST), Government of India, have used oxygen and magnesium as random dopants to demonstrate a quasiclassical Anderson transition that creates fluctuation of potential, (electrical potential) leading to bubbles of electrons inside a dielectric matrix that bring about a band structural change in the parent material. This leads to what is known as the percolative metal-insulator transition -- the structure remain same but electroically there is a transition.

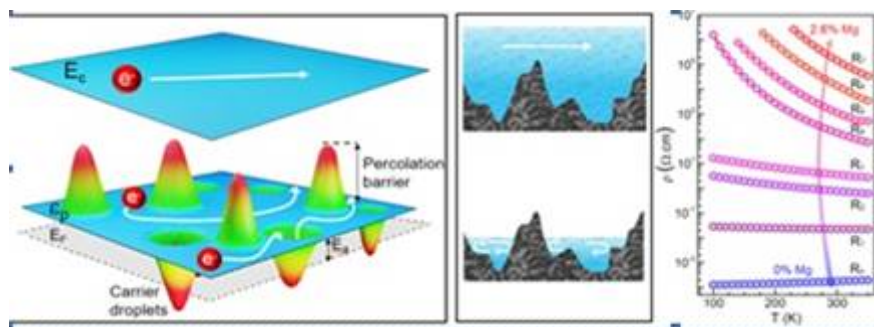
Spearheaded by Associate Professor Bivas Saha, the team unveiled how single-crystalline heavily doped and highly compensated semiconductors undergo a remarkable metal-insulator transition with single crystalline scandium nitride as an example. This transition published in the journal Physical Review B is accompanied by an astonishing nine orders of magnitude change in resistivity, offering fresh insights into the electron localization behavior in these materials.

The researchers have adopted a unique approach. They utilized a magnesium (hole) compensated scandium nitride semiconductor, and deposited it under ultrahigh vacuum growth conditions. The fluctuating potential within these materials resulted in not just the metal-insulator transition but also anomalous behaviors in carrier mobility, thermopower, and photoconductivity.

The potential fluctuation resulting from the random distribution of the dopants increases the resistivity of the semiconductor by localizing the carriers. The electron transport in such localized systems occurs through a percolation process, which is not very common in semiconductors. Hence the physics explaining the electrical transport and the properties like mobility, photoconductivity, and thermopower are different in such materials. Dr. Dheemahi, the lead author of the paper, remarked, "Such an electronic transition in single-crystalline and epitaxial semiconductors could open pathways for their utilization in various applications, including lasers, optical modulators, photoconductors, spintronic devices, and photorefractive dynamic holographic media." Potential fluctuations can be a novel tool to alter semiconducting properties in materials and may lead to more efficient semiconductors in many branches of studies.

"Our research marks the inaugural experimental confirmation of the quasiclassical Anderson transition and percolative metal-insulator transition in materials. We illustrated that potential fluctuations resulting from the random distribution of dopants drastically alter the electron transport physics in semiconductors invoking the percolation process. Moreover, we show that one can achieve a phenomenon that is very similar to the Anderson transition, albeit in a single-crystalline material. These findings are poised to transform our understanding of electron localization in materials." said Prof. Bivas Saha.

Apart from JNCASR, researchers from the University of Sydney, Australia, and Deutsches Elektronen-Synchrotron, Germany, also participated in this work.



<https://pib.gov.in/PressReleasePage.aspx?PRID=2049764>



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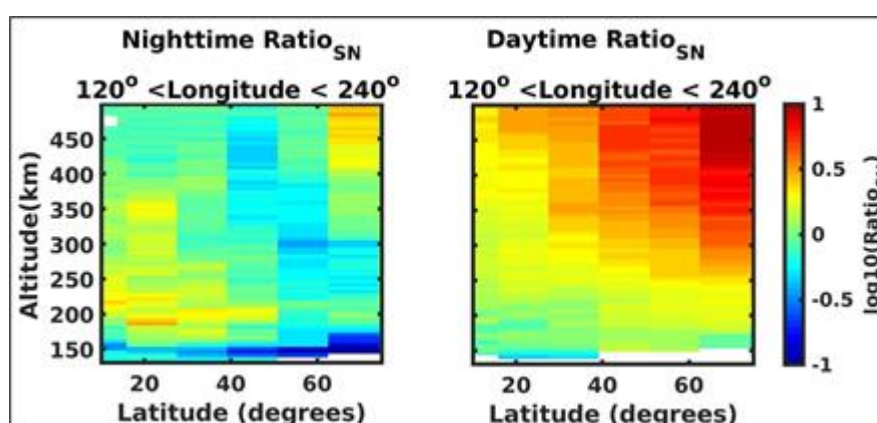
## Decoding magnetic field-ionosphere relation in Mars can help future space missions

Researchers exploring the crustal magnetic field of Mars, found that crustal field effects are much stronger during day-time but almost non-existent during night-time and that daytime crustal field effects remain unaffected by seasons or Sun-Mars distance.

Decoding Mars crustal magnetic field and its effects on the plasma environment near Mars is important to understand the magnetic shielding that has direct implications towards future robotic/human missions to space.

Mars is a planet which does not possess a global magnetic field. However, Mars has scattered crustal magnetic fields in the southern hemisphere. The crustal fields are located poleward of 30°S latitude and within a longitude region of 120° E to 240° E.

Scientists of Indian Institute of Geomagnetism (IIG), an autonomous institute of Department of Science and Technology who had long explored the Earth's magnetic field and its plasma environment, expanded their focus areas and forayed into planetary space plasma as well. C Nayak, E Yiğit, B Remya, J Bulusu, S Devanandhan, S Singh and AP Dimri, P Padhye conducted an in-depth investigation into how the weak crustal magnetic field of Mars controls its ionosphere and found that during daytime, the crustal magnetic fields strongly control the ionosphere in the southern hemisphere and the control is generally much stronger as compared to the northern hemisphere. However, during nighttime, the crustal magnetic fields lose their control over the ionosphere and hence the hemispheric asymmetry is lost.



*The hemispheric asymmetry in terms of variation of Ratio of southern hemisphere (SH) to northern hemispheric (NH) electron density ( $n_e$ ) as a function of latitude and altitude. It represents the ratio of  $n_e$  in a SH latitude to that in a NH latitude. The left and right panels represent night- and dayside conditions. The color codes shows the ratio in log10 scale, in each 5 km altitude by 10° latitude bin. The white spaces represent data gap.*

The scientists observed that this day-time control of crustal magnetic fields over its ionosphere is independent of the Sun-Mars distance (seasons). The study was published in the Journal of Geophysical Research: Space Physics.

The study was conducted using nearly 8 years of MAVEN (Mars Atmosphere and Volatile EvolutionN) satellite in situ data, of electron density and magnetic field to investigate how the crustal magnetic fields affect the Martian ionosphere. MAVEN is a NASA satellite orbiting Mars from around 2014.

This study by IIG scientists is a step towards enhancing that knowledge that can help future space missions.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2049766>

## ThePrint

Thu, 29 Aug 2024

### Study reveals intriguing magnetic behavior on Mars

The Indian Institute of Geomagnetism (IIG) has recently completed a study on the effects of Mars' crustal magnetic field on its plasma environment. The study has revealed that the crustal magnetic field of Mars is much stronger during the daytime and almost non-existent during the nighttime, a PIB press release stated. The crustal magnetic field of Mars is located in the southern hemisphere and is poleward of 30°S latitude. It has scattered crustal magnetic fields in the region of 120° E to 240° E. The study has shown that the daytime crustal magnetic field strongly controls the ionosphere in the southern hemisphere.

The scientists in the IIG have emphasized the importance of understanding the magnetic shielding provided by the crustal magnetic field of Mars for future robotic and manned missions to the space station. The study findings can help in developing effective space exploration strategies by providing knowledge of the planet's magnetic field and its potential effects on spacecraft dynamics.

The MAVEN (Mars Atmosphere and Volatile EvolutionN) satellite has been orbiting Mars since 2014. The spacecraft collects data on electron density and magnetic field, which can be used to investigate the effects of the crustal magnetic field on the Martian ionosphere. The study was published in the Journal of Geophysical Research: Space Physics.

<https://theprint.in/science/study-reveals-intriguing-magnetic-behavior-on-mars/2244197/>



Thu, 29 Aug 2024

### Science for All | Can hydrogels learn?

Hydrogels are an inseparable part of healthcare. Any polymer that readily absorbs water is technically a hydrogel and that is why ointments, lotions, cosmetics, contacts are different forms of hydrogel. Indispensable they may be but the last thing you'd expect them to be is sentient. In a recent issue of a journal published by Cell Press, researchers report that hydrogels can play the video game 'Pong' and even improve, the more they are exposed to the game. Pong is a vintage



video game version of table-tennis involving paddles and a ball. For their study the researchers hooked hydrogels up to a virtual game environment and

then applied a feedback loop between the hydrogel's paddle -- encoded by the distribution of charged particles within the hydrogel -- and the ball's position -- encoded by electrical stimulation. With practice, the hydrogel's accuracy improved by up to 10%, resulting in longer rallies. The researchers claim that this demonstrates the ability of non-living materials to use "memory" to update their understanding of the environment, though more research is needed before it could be said that hydrogels can "learn," according to a press note.

The researchers say they drew inspiration from a previous study that showed that brain cells in a dish can be taught to play Pong if they are electrically stimulated in a way that gives them feedback on their performance. This is akin to how neural networks are trained in AI to play games. However we are a long way from having our cosmetics jumping up with racquets.

<https://www.thehindu.com/newsletter/newsletter-science/science-for-all-newsletter-can-hydrogels-learn/article68576150.ece>



*Thu, 29 Aug 2024*

## **Bengaluru firm ties up with ISRO to develop AI model to identify and profile marine pollution**

City-based private company AlphaMers Ltd. has tied up with the Indian Space Research Organisation's (ISRO) Space Application Centre to develop an Artificial Intelligence (AI) model to identify and profile marine pollution, especially plastics and oils spills using remote sensing along the country's coastline.

AlphaMers Ltd. has developed and deployed floating trash barriers to capture solid waste while allowing water to flow freely. These barriers are deployed diagonally across the water to ensure that trash is carried to one end, where it can be easily recovered. AlphaMERS has installed its proprietary technology of floating trash barriers in nine Indian cities – Gorakhpur, Hyderabad, Bengaluru, Mysuru, Coimbatore, Puducherry, Chennai, Thanjavur and Tuticorin. The company said that the broad objective of the tieup is to develop and fine tune a robust model of AI to identify and profile marine pollution.

### **Remote sensing images**

"ISRO has a lot of remote sensing images captured from the sky by its satellites. We have a lot of our barriers in the rivers to collect plastics. When ISRO develops AI, it is based on the imagery but the algorithms they develop needs to be based on ground truth to determine whether what they are calling is plastic or not," AlphaMers Ltd. Managing Director D.C. Shekar told The Hindu.

Mr. Shekar added that his team has already started on the project. "There are no commercial interests involved. We are not paying them (ISRO) anything and they are not paying us anything. We are just bringing together our resources," Mr. Shekar added.

<https://www.thehindu.com/news/national/karnataka/bengaluru-firm-ties-up-with-isro-to-develop-ai-model-to-identify-and-profile-marine-pollution/article68581527.ece>

