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Press Information Bureau
Government of India

Ministry of Defence

Tue, 13 Jun 2023

Innovation & Enhanced International Cooperation Need of the Hour for Safety & Effectiveness of UN Peacekeepers in Today's Times, Says Raksha Mantri Shri Rajnath Singh

Calls for increased investment in training, technology & resources; Advocates for meaningful participation of women in peacekeeping operations

Time has come to expand UN Security Council with India as permanent member: RM

Raksha Mantri Shri Rajnath Singh has called for innovative approaches and enhanced cooperation among responsible nations to ensure the safety & effectiveness of United Nations (UN) Peacekeepers who are deployed in violence-hit regions to maintain stability, prevent conflicts and facilitate restoration of peace. He was addressing a special commemorative seminar, organised by the Indian Army, to celebrate 75 years of UN Peacekeeping, in New Delhi on June 13, 2023.

Shri Rajnath Singh highlighted the fast-evolving challenges being faced by the peacekeepers today and stressed on the need to invest more in training, technology & resources for their safety and productivity. He also advocated for meaningful participation of women in peacekeeping operations, emphasising that their unique contribution during missions in conflict-affected areas must be recognised.

The Raksha Mantri reiterated the necessity to make the UN decision making bodies, including the Security Council (UNSC), more reflective of demographic realities of the world. "When India, the most populous nation, does not find a seat as a permanent member of the UNSC, it tends to undermine the moral legitimacy of the UN. Therefore, the time has come for making the UN bodies more democratic and representative of the current realities of our age," he said.

Shri Rajnath Singh commended the role of UN peacekeeping operations and explained the enthusiastic global support for such missions through the economic concept of 'externalities'.

"When there is a conflict, it is harmful to the directly involved actors. Moreover, it has negative externalities for those involved indirectly. There is a plethora of negative externalities that have emanated out of the recent Russia-Ukraine conflict. It has led to food crisis in various African & Asian countries and has fueled an energy crisis in the world. A conflict at a particular place or region creates ripple effects which adversely impact the whole world. So, the rest of the world becomes a stakeholder in resolving the conflict and to restore peace. This is because peace has positive externality. When conflicting parties restore peace, they benefit in terms of human lives

saved, higher economic growth achieved, etc. The rest of the world also benefits as peace fosters stability and encourages economic growth,” the Raksha Mantri said.

Shri Rajnath Singh added that the positive externality of peace and negative externality of war drives the UN, along with the responsible nations, to act towards resolving any conflict. This action is manifested in terms of deployment of UN peacekeeping missions in conflict zones, he said.

India has a rich legacy of contribution to UN Peacekeeping operations and is one of the largest contributors of troops. It has contributed approximately 2.75 lakh troops to peacekeeping missions so far, with around 5,900 troops currently deployed in 12 UN missions. Since its first commitment in Korea in 1950, Indian troops have supervised complex, unmanageable peace operations, earning universal admiration for their professional excellence.

The Raksha Mantri expressed gratitude to all the Indians who have served or are currently serving as UN peacekeepers. “Our courageous soldiers, police personnel and civilian experts have demonstrated exceptional dedication and unwavering commitment to the cause of peace. They have selflessly served in some of the most challenging and dangerous environments, embodying the spirit of peacekeeping and upholding the principles enshrined in the UN Charter. Their unwavering commitment, professionalism and sacrifices inspire us all,” he said.

Shri Rajnath Singh extended his condolences to the families who have lost their loved ones in the line of duty and offered them Government’s support. He called for honouring the sacrifices of the peacekeepers by building a more just, peaceful and inclusive world. “Let us renew our commitment to promoting dialogue, understanding and cooperation among & within the nations. Together, we can build a future where every individual can live in peace, harmony and with dignity,” he added.

In his opening remarks, Chief of the Army Staff General Manoj Pande highlighted India’s contribution to the cause of UN Peacekeeping. He stated that India has close to 5,900 peacekeepers serving around the world on various peacekeeping operations, including female engagement teams in UN Organisation Stabilisation Mission in Congo (MONUSCO) and UN Interim Security Force for Abyei (UNISFA), besides women staff officers and military observers.

The Chief of the Army Staff also underlined the vitality of the UN Peacekeeping amidst the new and complex security challenges which continue to emerge and the readiness of the Indian Army to fulfil the country’s responsibility and commitment to the UN, in close partnership with fellow states.

On the occasion, the Raksha Mantri also unveiled a pictorial compilation of India’s rich and remarkable peacekeeping journey. On the sidelines, a photo exhibition, showcasing the country’s peacekeeping history, was organised. Permanent Representative of India to UN Smt Ruchira Kamboj addressed the event through a video message. Chief of Defence Staff General Anil Chauhan, UN Resident Coordinator for India Mr Shombi Sharp and senior officers of Ministry of Defence & Ministry of External Affairs were also among those who attended the event.

The seminar included an overview of Indian UN Peacekeeping by the officials of the Indian Army; an address on historical assessment of Indian Army in UN Peacekeeping by Former Head of Mission and Force Commander, UN Protection Force & Padma Bhushan Awardee Lt Gen Satish Nambiar (Retd).

The ideation session moderated by former Vice Chief of the Army Staff Lt Gen Philip Compose (Retd) included exchange of ideas by former Permanent Representative of India to the UN Ambassador Shri Asoke Mukerji; UN Resident Coordinator for India Mr Shombi Sharp; Former Force Commander MONUSCO & UN Mission in Ethiopia and Eritrea (UNMEE) and former Military Adviser to UN Secretary General Maj Gen Patrick Cammaert (Retd) on the topic of relevance of UN Peacekeeping Operations in an evolving world order.

The International Day of UN Peacekeepers is observed on May 29 every year to honour the professionalism, dedication & courage of those serving in UN peacekeeping operations and remember those who have laid down their lives in the cause of peace.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1931881>

THE ECONOMIC TIMES

Tue, 13 Jun 2023

Defence Minister Rajnath Singh Says UN's Moral Legitimacy Undermined

Pressing for changes in the United Nations setup, defence minister Rajnath Singh has said that the morale legitimacy of the world body is undermined by the current structure that does not include India as a permanent member of the security council.

Calling for an expansion of the security council, the minister said that the UN needs to become more democratic. "When India, the most populous nation, does not find a seat as a permanent member of the UNSC, it tends to undermine the moral legitimacy of the UN. Therefore, the time has come for making the UN bodies more democratic and representative of the current realities of our age," he said. Singh was speaking at a special commemorative seminar organised by the Indian Army to celebrate 75 years of UN Peacekeeping. India is one of the biggest contributors to peacekeeping missions and has deployed over 2.75 lakh personnel under the UN flag.

Army Chief Gen Manoj Pande said that at present India has close to 6,000 personnel serving in Lebanon, Congo, South Sudan, Abyei, Golan Heights and other parts of the world on varied peacekeeping operations. He also made the point that these troops have been equipped with weapons manufactured in India. Singh also called for peaceful resolution of conflicts, saying that the armed conflict between two or more actors has ripple effects for the entire world, giving the example of the ongoing Russia-Ukraine war. "There is a plethora of negative externalities that have emanated out of the recent Russia-Ukraine conflict. It has led to food crisis in various African and Asian countries and has fuelled an energy crisis in the world," he said. The minister added that peace will not only result in saving human lives but will be followed by prosperity and economic growth not only for the impacted region but the entire world.

<https://economictimes.indiatimes.com/news/politics-and-nation/defence-minister-rajnath-singh-says-uns-moral-legitimacy-undermined/articleshow/100974239.cms>



Press Information Bureau
Government of India

Ministry of Defence

Tue, 13 Jun 2023

Launch of 'Anjadip' Third Ship of ASW SWC (GRSE) and Keel Laying of 7th Ship of ASW SWC Project at M/s L&T, Kattupalli on 13 Jun 23

'Anjadip', the 3rd of eight ships of ASW Shallow Water Craft (SWC) Project being built by M/s GRSE for Indian Navy, was launched on 13 Jun 23 at M/s L&T, Kattupalli. The Launch Ceremony

was presided over by VAdm R B Pandit, C-in-C (SFC). In keeping with the naval maritime tradition, Smt Priya Pandit launched the ship to the chanting of invocation from Atharva Veda. The ship has been named Anjadip to signify the strategic maritime importance accorded to the island of Anjadip, located off Karwar. The island is connected to the mainland by a breakwater and is part of INS Kadamba. On completion of the event VAdm R B Pandit also laid the keel for the 7th ASW SWC ship.

The contract for building eight ASW SWC ships was signed between MoD and Garden Reach Shipbuilders & Engineers (GRSE), Kolkata on 29 Apr 19. As per the build strategy, four ships are being built at GRSE, Kolkata and construction of balance four ships has been sub-contracted to M/s L&T Shipbuilding, Kattupalli. Arnala class of ships will replace the in-service Abhay class ASW Corvettes of Indian Navy and are designed to undertake anti-submarine operations in coastal waters, Low Intensity Maritime Operations (LIMO), and Mine Laying operations including subsurface surveillance in littoral waters. The 77 m long ASW SWC ships have a displacement of 900 tons with a maximum speed of 25 knots and endurance of 1800 NM.

Launch of three ships of the same class in a span of six months reinforces our resolve towards indigenous shipbuilding as part of the Government's vision of 'AatmaNirbhar Bharat'. The first ship of the project is planned to be delivered to Indian Navy by Dec 23. The ASW SWC ships will have over 80% indigenous content, thereby ensuring that large scale defence production is executed by Indian manufacturing units, generating employment and capability enhancement within the country.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1932044>



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Ministry of Defence

Tue, 13 Jun 2023

Launch of 'Sanshodhak', Fourth Ship of Survey Vessel (Large) Project at M/s L&T, Kattupalli on 13 Jun 23

'Sanshodhak', the fourth of four ships of Survey Vessels (Large) (SVL) Project, being built by L&T/ GRSE for Indian Navy was launched on 13 Jun 23 at Kattupalli, Chennai. The chief guest of the Launch Ceremony was VAdm Adhir Arora, Chief Hydrographer to Government of India. In keeping with the Naval maritime tradition, Smt Tanvi Arora launched the ship to the chanting of invocation from Atharva Veda. The ship named 'Sanshodhak', meaning 'Researcher', signifies the primary role of the ship as a Survey Vessel.

The contract for building four SVL ships was signed between MoD and Garden Reach Shipbuilders & Engineers (GRSE), Kolkata on 30 Oct 18. As per the build strategy, the first ship would be built at GRSE, Kolkata and construction of the remaining three ships upto outfitting stage, has been sub-contracted to M/s L&T Shipbuilding, Kattupalli. The first three ships of the project, Sandhayak, Nirdeshak and Ikshak were launched on 05 Dec 21, 26 May 22 and 26 Nov 22 respectively.

SVL ships will replace the existing Sandhayak Class survey ships, with new generation hydrographic equipment, to collect oceanographic data. The Survey Vessel (Large) ships are 110 m long, 16 m wide with a displacement of 3,400 tons. The hull of these ships is made from indigenously developed DMR 249-A steel manufactured by Steel Authority of India Limited.

With a capability to carry four Survey Motor Boats and an integral helicopter, the primary role of the ships would be to undertake full scale coastal and deep-water hydrographic surveys of Ports and navigational channels. The ships would also be deployed for collecting oceanographic and geophysical data for defence as well as civil applications. In their secondary role, the ships are capable of providing limited defence, HADR, and can serve as Hospital ship during emergencies.

The Survey Vessels Large will have over 80% indigenous content by cost, ensuring defence production by Indian manufacturing units with a spin off in employment generation and warship building capability in the country. Launch of the fourth Survey Vessel reinforces our resolve in indigenous shipbuilding, as part of the Government's vision of 'Make in India' and 'Aatma Nirbhar Bharat'.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1932038>

Naval Technology

Tue, 13 Jun 2023

Indian Navy Boosts Defence Industrial Base

Garden Reach Shipbuilders and Engineers Ltd (GRSE), a Kolkata-based shipbuilding company, has launched two warships and has laid the keel for its third vessel on 13 June.

The new vessels are anti-submarine warfare shallow water craft (ASWSWC). These ships will replace the Indian Navy's Abhay-class frigates and are designed to provide subsurface intelligence, surveillance and reconnaissance (ISR) in littoral waters.

GlobalData defence analyst, Harshavardhan Dabbiru, stated: "Hitting multiple milestones on the same day highlights GRSE's capabilities in indigenous naval shipbuilding and India's evolution as a defense manufacturing hub worldwide."

The Indian naval vessel market is witnessing steady growth. According to GlobalData's estimates, India is likely to spend \$35.3bn on procuring various types of naval vessels and surface combatants over 2023–2033. As a result, the naval vessels and surface combatants market in India is expected to register a compound annual growth rate (CAGR) of 4.4% during the forecast period.

The push toward indigenous shipbuilding will ensure that a large portion of this revenue goes to the local players in the country.

"India's pursuit of indigenous naval shipbuilding capabilities is part of the country's strategic objective of attaining self-sufficiency in defense procurements for its armed forces.

"Over the years, the country has reduced its reliance on imports while encouraging domestic innovation and skill development. The recent accomplishments of the GRSE also showcase the capabilities of the domestic supply chain entities in delivering the complex sub-systems that go into these advanced naval platforms," Dabbiru added.

Subsurface capabilities

The global underwater warfare systems market, valued at \$4.9bn in 2022 and is projected to grow at a CAGR of 3.41% over the forecast period. It is expected to reach \$6.8bn by 2032 and cumulatively value \$64.9bn over the forecast period.

The market consists of multiple categories: torpedo, naval mine, sonar, torpedo countermeasure systems and decoys, sonobuoys, and uncrewed underwater systems. The market is expected to be dominated by the sonar segment, which accounts for 58.8% of the market, followed by torpedo segment with 13.5% share.

Among geographic segments, Asia-Pacific – spearheaded by the success of India in recent months – is projected to dominate the sector with a share of 35.3%. This is followed by Europe and North America, with shares of 30.0% and 24.6%, respectively.

<https://www.naval-technology.com/news/indian-navy-boosts-defence-industrial-base/>

THE ECONOMIC TIMES

Tue, 13 Jun 2023

The Business of BrahMos: How India's Defence Exports Blasted Off

India's aim to become a world power is not possible without acquiring hard power which, in its most literal manifestation, is the power of weapons, the capacity to make them and sell them to other countries too. The Russia-Ukraine war has proved how weapons dependency can turn fatal — India depends for half its weapons supplies on Russia which the war has jeopardised, while both Russia and Ukraine have learnt how critical is the need for self-reliance in military hardware.

For long, India has been the largest defence importer in the world, which means utter dependence on other countries. But things have changed dramatically in the past few years when India fast emerged as a defence exporter. Recent media reports of Vietnam looking to buy BrahMos missiles from India, in a deal which could be worth as much as \$625 million, is a pointer towards India's future as a major arms supplier. The centrepiece of this ambitious enterprise is the BrahMos missile project, which has completed 25 years this year.

BrahMos Aerospace was established through an inter-governmental agreement in 1998 as a joint venture between India's state-run Defence Research and Development Organisation and NPO Mashinostroyeniya of Russia. The first trial launch of BrahMos missile took place in 2001. Various versions of this missile have been commissioned to India's navy, air force and army.

Western-led sanctions against Russia for its invasion of Ukraine have not impacted BrahMos production or planning. Although BrahMos missiles still depend on Russian parts and raw material, the percentage of local input has gone up to over 70% from around 15% at the start of the venture. BrahMos Aerospace is now upgrading the missile, reducing its size, in terms of weight and dimensions so that it can be carried on a light-combat aircraft.

The strategic business of BrahMos

Sale of BrahMos to other countries not only push India's exports but also hold promise of strategic partnerships. Vietnam won't be the first country to buy BrahMos. Last year, India inked an export deal with the Philippines, signing a \$375 million contract for the BrahMos shore-based anti-ship missile system. Now Indonesia is also interested in BrahMos.

In response to a growing Chinese maritime presence in the South China Sea and some surrounding areas, Indonesia and the Philippines have ramped up their spending on the procurement of weapons and other military equipment, according to data from defence intelligence company Janes, Reuters has reported. "Territorial disputes with China have been a major concern for most of the Southeast

Asian countries which is driving their defence budget to meet their security requirements," Akash Pratim Debbarma, an aerospace and defence analyst at GlobalData, told Reuters. Much of Southeast Asia's new military purchases come from traditional suppliers, including the United States, France and Russia, but India - the world's largest defence importer - and BrahMos are trying to make inroads. Sale of BrahMos to Philippines, Indonesia and Vietnam will bolster India's Act East policy. More military capacity for these countries alters the balance of power in the South China Sea where China asserts its supremacy and is being challenged by the US and other allied powers. India is increasingly trying to expand its influence in the Indo-Pacific. Sale of weapons to countries in maritime dispute with China offers India the scope of critical strategic partnerships. Early this year, for the first time an Indian submarine docked in Indonesia. Arms sales can play an important role when India is looking for military footholds in the Indo-Pacific.

BrahMos Aerospace expects to close a deal to sell Indonesia missiles worth at least \$200 million, Reuters has reported. The company has been in protracted negotiations with Indonesia and details about the size and timeline of a potential deal have not been previously reported. BrahMos Aerospace CEO Atul D. Rane told Reuters that the deal could be in place within the year.

BrahMos is also aiming to land a follow-on order of around \$300 million with the Philippines, where its missiles are scheduled to be delivered to the Philippine Marine Corps starting at the end of 2023, Rane said. "The Philippines themselves have sort of indicated to us that this is just an ice breaker," Rane said, referring to the 2022 sale. "They are looking at more systems."

In fact, India is in talks with as many as eight countries for exporting the Brahmos missiles. These are friendly nations located in Southeast Asia, Middle East and Africa.

India's soaring defence exports

The BrahMos missiles are the biggest showpiece of India's defence exports, but India has started exporting a range of other weapons too. A push for indigenous manufacturing of weapons and related equipment has given a boost to India's defence exports too.

India's defence exports reached an all-time high of Rs 15,920 crore in 2022-2023. The country's defence exports in 2021-22 were Rs 12,814 crore, Rs 8,434 crore in 2020-21, Rs 9,115 crore in 2019-20, Rs 10,745 crore in 2018-19, Rs 4,682 crore in 2017-18 and just Rs 1,521 crore in 2016-17, according to government data.

The spurt in defence exports is the result of the Narendra Modi government's resolve to become 'Atmanirbhar' (self-reliant) in military supplies. The government has set the target of manufacturing defence hardware worth Rs 1,75,000 crore and take defence exports to Rs 35,000 crore by 2024-25. In the last few years, the government has taken a series of measures to promote domestic defence production. Under its ambitious indigenisation project, the government has banned import of a large number of weapons and equipment in recent years.

Besides the big-ticket BrahMos, India exports Dornier-228 aircraft, artillery guns, radars, armoured vehicles, rockets and launchers, torpedo loading mechanism, alarm monitoring & control systems, night-vision monocular and binocular, lightweight torpedo and fire-control systems, weapons-locating radar, HF radio and coastal surveillance radar, among others.

India is pitching itself as a reliable supplier of arms and defence technology to African countries too. At present, India has a small presence in Africa when it comes to arms supplies. Industry insiders estimate that barely 10-15% of the annual defence exports go to Africa. Recently, army chiefs or their representatives from 31 African nations were showcased the capability of the Indian industry at the maiden India Africa Army Chiefs Conclave in Pune. The visiting delegations were given demonstrations of available systems such as artillery guns, armoured vehicles, radars, simulators and ammunition.

India currently exports weapons to over 80 countries, with the US being a prominent customer. Indian companies have got orders from US defence majors to supply parts of platforms like the F 16 fighter jets, Chinook and Apache helicopters among others .A slew of export orders signed with Armenia, including Pinaka Multi Barrel Rocket Launchers, artillery guns, a range of ammunition among other systems, has helped shore up export numbers this year.

The promise of LCA

India's other big-ticket defence export item could be the Light Combat Aircraft (LCA) Tejas, developed by Hindustan Aeronautics Limited (HAL). It was developed from the LCA programme that began in the 1980s to replace India's ageing MiG-21 fighters. Last year, Malaysia shortlisted Tejas for purchase but it lost out to the other contender, South Korean supersonic fighter KAI FA-50. India was among eight countries to respond to Malaysia's tender. Tejas and South Korean KAI FA-50 made it to the shortlist.

Still confident on Tejas' export potential, HAL CMD CB Ananthkrishnan told TOI in February that HAL had some very good leads for the aircraft from many other countries. "Argentina and Egypt have definitely shown interest. Argentina also has seen two teams visit us and they are quite convinced about the product and quite happy about the product details. Their airforce team has come and flown the aircraft also. So, we are pursuing Argentina and want to start some sort of a relationship building. A contract is likely to get signed," he said.

Ananthkrishnan said while Argentina was in discussion for around 15 LCAs, Egypt had been given a proposal for around 20 aircraft. "We are yet to hear from them, but further discussions will take place and we are also interested in setting up an ecosystem with them," he said.

India's arms trade diplomacy

To sharpen its arms export strategy, India is carrying out reforms in military attaches deployment abroad. In line with PM Modi's directive to increase defence exports, the government is carrying out a major change in their deployments as they would be posted to countries where they can help in expanding domestic defence exports.

While positing these officers, the focus would be on countries in Africa and the Middle-East along with friendly nations in Southeast Asia which have shown interest in Indian equipment. The government is also going to allow the attaches to promote the sale of hardware manufactured by India's private companies.

<https://economictimes.indiatimes.com/news/defence/the-business-of-brahmos-how-indias-defence-exports-blasted-off/articleshow/100961603.cms>



Wed, 14 Jun 2023

Ahead of PM Modi's Visit, US Urging India to Seal Major Armed Drone Deal: Report

Ahead of Prime Minister Narendra Modi's state visit to Washington, the Biden administration is urging New Delhi to overcome bureaucratic obstacles and expedite a contract for a significant number of armed drones manufactured in the United States.

As reported by Reuters citing sources, with Prime Minister Modi's visit date set, the U.S. State Department, Pentagon, and White House have requested India to demonstrate visible progress on the deal involving the procurement of up to 30 MQ-9B SeaGuardian drones manufactured by

General Atomics. India has shown keen interest in procuring large armed drones from the United States for years. However, the progress of the deal for SeaGuardian drones, which holds a potential value of \$2 billion to \$3 billion, has been impeded by bureaucratic hurdles.

U.S. negotiators are counting on Indian Prime Minister Narendra Modi's White House visit on June 22 to break the log jam. It is anticipated that discussions between Modi and Biden will also encompass topics such as the co-production of munitions and ground vehicles, including armored personnel carriers, as per the sources. Spokespeople for the White House, Department of State and the Pentagon declined to comment on the negotiations.

President Joe Biden has prioritized strengthening the relationship with India as a key element of his strategy to counter China's increasing influence. This year, particular emphasis has been placed on enhancing cooperation between the two largest democracies in the world regarding advanced military technologies, despite the absence of a formal security alliance between them.

New Delhi, known for its stance of non-alignment in global conflicts involving major powers, has caused frustration in Washington by maintaining certain defense and economic relationships with Russia despite the latter's invasion of Ukraine. Resolving the bureaucratic obstacles in India regarding the drone deal relies on an internal meeting that aims to produce an "Acceptance of Necessity" document. This document serves as an Indian prerequisite to the formal "Letter of Request," which initiates the foreign military sale process. However, as of Tuesday, the sources were uncertain whether New Delhi had completed the required internal document.

"That's gonna be a decision that the government of India needs to make," said a senior Biden administration official. "We think it would be good for them to go through with the purchase of MQ-9s. But those decisions are sort of more in the hands of India than they are of us."

The topic was expected to be on the agenda as Biden's national security adviser, Jake Sullivan, arrived in New Delhi on Tuesday to finalize preparations ahead of Modi's visit.

According to a knowledgeable source, as of last week, India's defense ministry had not yet reached a final decision regarding the quantity of drones it intends to purchase.

Initially, the number under consideration was 30, but it was later reduced to 24 and subsequently further lowered to 18 last month. It should be noted that none of these figures have been confirmed as the final number. Additionally, India is seeking to have certain components of the equipment manufactured domestically, which could potentially add complexity to the deal.

The Quad alliance, consisting of the United States, India, Australia, and Japan, has all utilized or been involved with the MQ-9B SeaGuardian drones. Presently, India is leasing MQ-9B drones for intelligence-gathering purposes.

<https://www.livemint.com/news/world/ahead-of-pm-modis-visit-us-urging-india-to-seal-major-armed-drone-deal-report-11686705157576.html>

THE ECONOMIC TIMES

Wed, 14 Jun 2023

PM Modi's US Visit Designed to Remove Defence, High-Tech Trade Obstacles, Says Jake Sullivan

US National Security Advisor Jake Sullivan who met his Indian counterpart Ajit Doval here on Tuesday to discuss China among other issues hinted at removing obstacles in defence and high-tech trade.

"As we look ahead to the state visit Prime Minister Modi will be embarking upon in Washington next week... a number of the deliverables at the visit are not just bullet points on a page," Sullivan said here at the second Track 1.5 dialogue on iCET organised by the Confederation of Indian Industry following his restricted format talks with Doval.

"They are fundamentally designed to remove those obstacles in defence trade, in high-tech trade, in investment in each of our countries, in taking away obstacles that have stood in the way of our scientists and researchers," Sullivan said.

This includes areas such as research and development, 5G and 6G telecommunication technology, semiconductor supply chains, artificial intelligence, advanced computing and biotechnology, and "specifically on removing barriers to strategic trade", Sullivan said. Earlier, he also met the PM.

In their restricted format meeting Doval and Sullivan discussed regional and global issues including China. Sullivan's two-day visit is aimed at giving momentum to Initiative on Critical and Emerging Technologies (iCET) ahead of Prime Minister Narendra Modi's US visit next week.

The first edition of this dialogue had been organised by the US Chamber of Commerce in Washington, D.C. on January 30. At Tuesday's dialogue, the NSAs expressed satisfaction at the progress made under iCET and encouraged stakeholders to strive for technology value chain partnerships that would lead to co-development and co-production of high technology products and services in both countries.

Speaking at the Dialogue, Doval said that India and the US have made significant progress in ties not only at the government level but also at the industry level. Doval said when in January this year he had gone to Washington and held discussions with Sullivan and members of industry, he was very excited about the idea of technological cooperation. "I was not sure whether the idea will be able to take off. Today, I am much more confident and hopeful. And it is not because of what has happened at the level of the government but because of what the response was at the level of institutions."

<https://economictimes.indiatimes.com/news/defence/pm-modis-us-visit-designed-to-remove-defence-high-tech-trade-obstacles-says-jake-sullivan/articleshow/100973725.cms>

ThePrint

Tue, 13 Jun 2023

General Electric Jet Deal will be a Test of India-US Trust. Critical Tech at Stake

By Lt General Prakash Menon

Last week, media reports raised expectations that an important announcement on defence sector cooperation may occur during Prime Minister Narendra Modi's visit to the United States on 22 June. This announcement could be about manufacturing the General Electric F414 fighter engines in India, and the transfer of technology.

White House has not commented on these news reports yet, but if they turn out to be true, India's indigenous capacity to produce fighter aircraft would be boosted, and a major hurdle in its defence preparedness would be mitigated. It would also signify the growing level of trust rooted in global geopolitical considerations that could potentially strengthen strategic cooperation between India and the US, particularly in the Indo-Pacific region.

There is no doubt that India-US defence cooperation has gathered unprecedented momentum over the last decade. However, the major shift occurred in 2005, when the nations signed several bilateral agreements. These included the Nuclear Deal and the 'New Framework for Indo-US Defence Partnership' with a 10-year tenure. This framework deepened military-to-military cooperation through joint exercises, defence trade and personnel exchanges and was renewed in 2015. In 2013, a Joint Declaration on Defence Cooperation was signed after the US pledged to cooperate in defence technology transfer, licensing, trade, research, co-production and co-development. Moreover, in 2012, India and the US signed the Defence Technology and Trade Initiative (DTTI) to remove roadblocks in defence technology exchange. By 2016, India was granted the status of a 'Major Defense Partner', which committed the US to facilitate technology sharing with India to a level commensurate with that of its closest allies and partners, and industry collaboration for defence co-production and co-development.

Both countries have also signed four key agreements related to the security of shared military information (2002), mutual access to logistics facilities (2016), communications compatibility and security (2018) and geospatial intelligence (2020). But DTTI, which aimed to simplify technology transfer policies and explore possibilities of co-development and co-production, made very little progress in technology transfer due to obstacles primarily posed by US domestic laws. In 2022, an agreement called the Initiative on Critical and Emerging Technologies (ICET) was signed. Its main purpose was to overcome bureaucratic barriers and excessive regulations that impede technological cooperation.

The US Department of Commerce, through the International Traffic in Arms Regulations (ITAR), controls all transfers of critical technologies. The process involves the evaluation of critical technology risks as well as risk mitigation. Therefore, an ITAR package for the F414 will have to be created and approved by the departments of commerce, State and defense, and gain approval from the US Congress. The process' official status is not known, but it should be in an advanced stage if the F414 is to be announced during PM Modi's visit.

The safeguard rails can logically be expected not to permit sharing of intellectual property rights of core technologies. For a complex product like a jet engine with several thousand parts, it would ensure that dependency on the US is maintained in the long run too. For example, it would not transfer technology related to critical materials used in thermal contact parts, such as turbine blades, which are vital for developing thrust in jet engines. Also, the F414 engine is now over 30 years old and has undergone several upgrades. The version under consideration now should indicate whether it is the latest and the best available. Notably, most US fighters use more advanced engines today.

The shadow of anxieties surrounding the protection of intellectual property rights can only be diminished by the strategic benefits expected to accrue to the US interests. If an advanced jet engine deal comes through, it would indicate that the shadow has shrunk due to changes in geopolitical considerations and expectations.

Geopolitical expectations

China's aggressive tactics – particularly in the backdrop of its rapid economic, technological and military growth – have prompted the US and India to view the prospect of strengthening the latter's military capability as a necessity. For India, China's 2020 intrusion in Ladakh buried all illusions of Beijing's political posture toward New Delhi. India's proximity to the US has grown since then, and the jet engine deal is one of the many understandings reached between the two. For the US, it was the Donald Trump administration that orchestrated several moves against China, especially in terms of denial of technology.

The Russia-Ukraine War, however, has brought to the fore India's geopolitical posture, and signals New Delhi's approach as being one that is contextual and aligned with its interests. Russia continues to be seen as a partner in the domains of defence and energy. Also, India, unlike the US, believes that a strong Russia, as part of a multipolar global architecture, is in the larger interests of global stability. It is increasingly apparent that there is a reluctant acquiescence by the US of India's stance, especially in the context of its global confrontation with China.

Most outcomes of Modi's visit would have already been, more or less, decided and firmed up through several rounds of parleys at different levels. Understandably, the jet deal will be part of a broader understanding, accompanied by expectations that may not be explicitly stated or made publicly known. A recent report by US think tank The Heritage Foundation supports the transfer of F414 technology to India to counter China. It also suggests the possibility of greater cooperation between India and the US on the Andaman and Nicobar Islands. These islands are of geostrategic importance as they are a gateway to the Malacca Straits, which connect the Indian Ocean to the South China Sea and the Western Pacific.

The Logistics Exchange Memorandum of Agreement (LEMOA), signed in 2016 after 10-year-long discussions, caters to the militaries of the US and India. It allows both countries to replenish logistic requisites from each other's bases by way of accessing supplies, spare parts and services from each other's land facilities, air bases, and ports, which can then be reimbursed. It would also prove particularly useful for logistics in the Indo-Pacific. But it does not include ammunition stores, the key component of combat logistic support for military operations.

A win for the public sector?

According to some media reports, Hindustan Aeronautics Limited (HAL) has already been earmarked to partner with General Electric for the manufacture of the F414. HAL already has experience in the field, apart from the necessary infrastructure. But it is a moot point whether it will shed its public sector culture, achieve the efficiencies required, and leverage its experience to carry out indigenisation speedily. Considering the importance of the project, it is time the government appointed a suitable serving or retired Air Marshal who could, perhaps, bring change in HAL's work culture. On the other hand, even though HAL was kept out of the Rafale Deal, it appears in the case of the F414 that the Indian private sector will play the vendor's role, with potential benefits accruing to the Micro, Small and Medium enterprises (MSMEs). The public sector seems to have won this round.

The bigger picture

The significance of the proposed jet engine deal lies not only in reducing dependency on arms import but also in the realm of trust developed between India and the US as they work together to protect their common interests from China's aggression. Indian expectations would be that the deal is a harbinger of similar agreements in other areas that could find closure in the ongoing but prolonged discussions on naval, air, intelligence, surveillance and reconnaissance systems.

India's active participation in QUAD and deepening defence ties with the US along with the preservation of its relationship with Russia are an unambiguous signal to US, Russia and China – New Delhi will sit in the same tent if the context has common interests, but it will not join any military camp/bloc.

<https://theprint.in/opinion/general-electric-jet-deal-will-be-a-test-of-india-us-trust-critical-tech-at-stake/1624684/>

Making a Strong and Valid Case for Japan-India-France Grouping

By Sanvit Shah

The world has long-ditched the Cold War era, two-camp approach of foreign policy and is steadily adapting to the realities of an increasingly multi-polar world. The result of this shift is more and more interest-specific groupings. These cooperation and partnerships are often based on narrow and specific interests, unlike across-the-board alliances or treaty-bound partnerships. The reason for traction to this approach is that it allows grounds for engagement and possible cooperation despite existing tensions and conflicts. Recall all those burgeoning acronyms that now populate the diplomatic landscape – AUKUS, BRICS, I2U2, Quad, SCO among plenty of others. This piece attempts to make a case for one more, Japan – India – France, call it JIF (or anything that sounds more pleasant – FIJ? IJF?).

The reason for making a case for a more formalised partnership between two of the major and influential G7 members with a growing economy from Global South, is the inherent bilateral strengths and potential for cooperation between Paris, Tokyo, and New Delhi. In recent decades, there has been a traditional consensus among Tokyo and Paris on most major international issues, the importance of their bilateral diplomatic relationship is mostly under-appreciated and is often surrounded by negative headlines such as troubles around the Renault-Nissan partnership. The underappreciation is also visible in increasingly stronger partnerships between Paris and New Delhi, as well as in the ties between New Delhi and Tokyo. Alignment of mutual interests can be the sustaining force for this trilateral grouping.

For New Delhi, the importance of both partnerships is crystal clear. Indo-Japan partnerships have thrived for years and received significant impetus from personal chemistry between leaders in Abe-Modi era. The Japanese capital and technology are treated as crucial in realising India's developmental aspirations. For example, the choice of Japan's Shinkansen high-speed rail technology for India's first bullet train project aptly captures the significance of the growing role of Japan – both in terms of providing technology as well as capital – in India's strategic decision-making.

Japan still remains a major source for FDI inflows in India, with annual FDI inflow more than USD 1.3 Bn for almost a decade now, peaking in 2017 at around USD 4.2 Bn. The partnership has only gained momentum with similar vision and concerns in Indo-Pacific and working together in Quad grouping alongside the United States and Australia. For Paris, partnership with India has steadily gained momentum and today it serves as its major diplomatic partner outside of the francosphere. New Delhi is also seen as a crucial partner for Paris's strategic and defence interests, and an important ally for France' much desired 'strategic autonomy', outside of the European Union, G7, and NATO. For India, Paris is currently her strongest and most reliable support base in the United Nations Security Council, replacing New Delhi's traditional reliance on Moscow. While New Delhi's strategic importance has grown both in London and Washington, the strong presence of anti-India interests in the domestic politics of the US and UK often hinders their reliability from New Delhi's perspective. For India, Paris is also a crucial partner for defence procurement and technology transfer, given the broader and long-term benefits of diversifying away from Moscow as well as maintaining a strategic distance from Washington as key defence suppliers.

For Tokyo, stronger and more effective partnerships with major European powers as well as large emerging economy allows for a more independent approach to global affairs. For almost stagnant large economies such as Japan, India fares well as a large and growing market for trade and investment activities. Further, while Quad will continue to remain Tokyo's Indo-pacific pivot, Paris is undoubtedly a major stakeholder in the region and will add value for both Tokyo and New Delhi, as both countries embark on an ambitious security strategy overhaul. The relative absence of Paris in the current Indo-Pacific discourse is indeed awkward, given France's vast presence in the region through its overseas territories. It is worthwhile to note that more than 90% of France's exclusive economic zone lies in the Indo-Pacific and not in the Atlantic.

A trilateral partnership with the potential for cooperation across various areas including emerging technologies, trade, security, and defence cooperation would be mutually beneficial for all three major and influential powers in asserting their individual strategic autonomy. For France and Japan, this arrangement will allow for more independent expression of their defence and security concerns outside of their respective European and American security and diplomatic umbrella. And for India, this will allow her to be a more influential voice of the Global South and reinforce a commitment to a multipolar world and no-camp or own-camp diplomacy.

<https://www.wionews.com/opinions-blogs/making-a-case-for-japan-india-france-grouping-603946>

THE ECONOMIC TIMES

Tue, 13 Jun 2023

Israel Reports Record \$12.5 Bln Defence Exports, 24% of them to Arab Partners

Israel exported a record \$12.556 billion in defence products last year, with new Arab partners under the U.S.-sponsored 2020 Abraham Accords accounting for almost a quarter of the business, the Defence Ministry said on Tuesday. It said the 2022 figures marked a 50% increase over the previous three years and a doubling in volume over the previous decade. Drones accounted for 25% of the 2022 exports and missiles, rockets or air defence systems for 19%, it said.

Without naming specific clients, the ministry said 24% of defence exports were to Abraham Accords countries. United Arab Emirates and Bahrain were signatories to those accords, and Israel often counts Morocco and Sudan as part of them as well. Asia and the Pacific accounted for 30% of Israeli defence exports, Europe for 29% and North America for 11%, it said.

<https://economictimes.indiatimes.com/news/defence/israel-reports-record-12-5-bln-defence-exports-24-of-them-to-arab-partners/articleshow/100968294.cms>



Tue, 13 Jun 2023

Germany Plans Purchase of Six IRIS-T Air Defence Units – Source

Germany aims to purchase six IRIS-T air defence systems for its air force at a total cost of some 900 million euros (\$971.73 million), a defence source told Reuters ahead of a final decision by lawmakers on Wednesday.

So far, Berlin has bought two IRIS-T units built by Diehl for Ukraine and pledged to send another two systems to Kyiv, but has not equipped its own forces with it yet.

Boasting a range of some 40 kilometres (25 miles) and a 360 degree view, the IRIS-T SLM system is one of the most coveted of the weapons that Berlin has supplied to Kyiv.

<https://www.reuters.com/business/aerospace-defense/germany-plans-purchase-six-iris-t-air-defence-units-source-2023-06-13/>

Science & Technology News

नवभारत टाइम्स

Wed, 14 Jun 2023

AI के नियम से बनेगा निओम

AI सिर्फ कविता-कहानी, सॉफ्टवेयर या रोबोट ही नहीं बना रही, एक भरा-पूरा शहर भी बनाने में जुटी है। नियम नाम से सऊदी अरब जो फ्यूचर सिटी बना रहा है, उसमें AI बड़ा रोल प्ले कर रही है। वहीं ChatGPT को भी UAE के लिए अलग तरह से डिजाइन किया जा रहा है। देखते हैं खाड़ी देशों का चेहरा कैसे बदल रही है AI...

170 किमी लंबी लाइन में होगा 200 मीटर चौड़ा शहर

खाड़ी में AI

2017: UAE में नैशनल एआई रणनीति बनी, UAE में बना दुनिया का पहला AI मंत्री

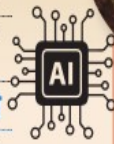
2020: जॉर्डन, मोरक्को भी UAE की राह पर

2023: खाड़ी का खर्च हुआ 3 अरब डॉलर

2026 तक: AI पर 6.4 अरब डॉलर खर्च करेंगे खाड़ी देश

30% हर साल खर्च में बढ़ोतरी

प्रमुख देश: UAE, सऊदी अरब और कतर



क्या है नियम

सऊदी अरब के तबूक प्रांत में लाल सागर तट से उत्तर-पश्चिम पहाड़ों तक बन रही फ्यूचर सिटी, जिसकी लागत 500 बिलियन डॉलर से अधिक है



90 लाख लोगों से बसेगा शहर।



हर चीज 5 मिनट की दूरी पर।

ना चलेंगे कारें, ना होंगी भीड़ भरी सड़कें।



ग्राउंड लेयर प्राकृतिक सुंदरता और चहलकदमी के लिए।



3 लेयर में बंटा होगा शहर- ग्राउंड, सर्विस और स्पाइन।

सर्विस लेयर कर्मशाल एक्टिविटी- शॉप, ऑफिस, ट्रांसपोर्ट।

स्पाइन लेयर में अल्ट्रा स्पीड ट्रांसपोर्ट सिस्टम।

शहर के अंदर AI से कंट्रोल होगा मौसम



2030 तक दुनिया में AI

15.7 लाख करोड़ डॉलर अर्थव्यवस्था में योगदान

+26% लोकल GDP बढ़ेगी

300 से अधिक क्षेत्रों में उपयोग

मक्का-मदीना में AI



- हर साल आते हैं 25 लाख श्रद्धालु।
- हज के दौरान भीड़ नियंत्रण।
- रियल टाइम मॉनिटरिंग में काम।
- विभागों के बीच समन्वय का काम।
- दो पवित्र मस्जिदों में AI सेवा शुरू।

- विदेशी श्रद्धालुओं के आवेदन का निपटान।
- ग्रांड मस्जिद में भी AI से कई सुविधाएं शुरू।
- बीते रमजान में AI ने दी शानदार परफॉरमेंस।
- 2021 से ही पवित्र शहर में काम कर रही AI।

सऊदी अरब आगे

- 25 करोड़ डॉलर से सऊदी अरब बना रहा AI लैब, डिलिवरी फैक्ट्री, अकादमी।
- चीन और अमेरिका के साथ किए समझौते।
- AI की मदद से 2030 तक लगभग 1000 करोड़ वृक्ष।
- 25,000 औरतों को इसकी ट्रेनिंग देगा सऊदी अरब।
- अमेरिका के साथ बना रहा ग्लोबल AI कॉरिडोर।

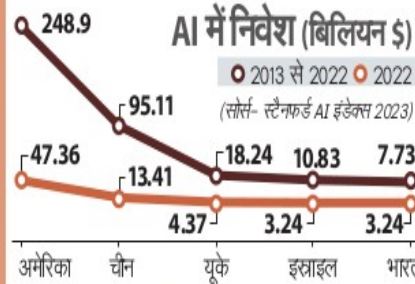
प्रमुख सप्लायर: चीन, अमेरिका, जर्मनी, ब्रिटेन, स्वीडन।



अगर हमने AI को सही तरीके से यूज किया तो भारत इसका अगुआ बन सकता है। भविष्य में भारत सुपर पावर बनेगा और उसमें AI बहुत बड़ी मददगार होगी। -*हर्ष गोयनका, उद्योगपति*

नियम में AI

हेल्थ, इन्फ्रास्ट्रक्चर, पावर, ऑटोमोबाइल, फाइनेंस, कम्युनिकेशन, रीटेल, मैन्युफैक्चरिंग, एंटरटेनमेंट, ट्रांसपोर्टेशन, पुलिसिंग और जुडिशरी।



AI का इस्तेमाल

- चैटबॉट्स
- बिजली, पानी, गैस की सुविधा और बचत
- डिजिटल वित्तीय सेवा
- एमिरेट्स एयरलाइंस की परफॉरमेंस एनालिसिस
- स्थानीय स्वास्थ्य सेवा संबंधी आंकड़े पाने में



फेक न्यूज फैलाने वालों का हथियार कैसे बन रही AI? इस पर लेख पढ़ने के लिए यहां स्कैन करें और navbharatgold.com पर जाएं

कॉन्टेंट : राहुल पाण्डेय, ग्राफिक्स : अर्जुन सिंह

FINANCIAL EXPRESS
Read to Lead

Tue, 13 Jun 2023

Indian Startup Azista BST Aerospace's First Satellite Launched by SpaceX

As part of the Transporter-8 Mission by Elon Musk's Space Exploration Technologies Corporation, Azista BST Aerospace Pvt Ltd's first satellite, ABA First Runner (AFR), was launched onboard the Falcon 9 rocket on June 13, 2023.

The satellite lifted off from Space Launch Complex 4E at Vandenberg Space Force Base, California, as part of Musk's SpaceX rideshare project. There were 72 spacecraft—including CubeSats, MicroSats, orbital transfer vehicles and a re-entry capsule on the rocket besides India's AFR. This marks a significant step forward in the country's space exploration sojourn. The company is working to develop the next set of satellites and plans to manufacture 'Made in India' satellites on a mass scale for the global market. This successful mission is a forerunner of its intentions.

Indian startup BST Aerospace has established an avant-garde 50,000 sq. ft facility that has the capability of supporting the manufacture of 2 satellites every week. The AFR, built on a modular bus platform, weighs 80 kg. It carries a wide-swath, remote-sensing, optical payload with both

panchromatic and multispectral imaging capabilities. Going by its size and performance, AFR is the first-of-its-kind satellite indigenously built by India's private space sector, which has the capability to support various critical applications for military and civilian uses.

Managing Director Srinivas Reddy Male said, "The deployment of the ABA First runner imaging Satellite is a noteworthy accomplishment for the company. This satellite is the product of a lengthy four-year effort and this launch is just the first of many ambitious projects our firm aims to complete."

"The teams at Azista and Azista BST are preparing for the mass production of satellites," he added.

"This undertaking displays our competence to gather, incorporate sophisticated technologies from its collaborators and successfully construct, keep the satellites aloft. Our earnest endeavour to work in the domain of advanced and intricate technologies reflects that with determination and cooperation among teams, we can overcome the arduous challenges in space," Srinivas Reddy Male added.

Sunil Indurti, director of Azista BST Aerospace said that the launch of the AFR satellite is part of the Transporter 8 Mission. Indurti, on behalf of Azista BST Aerospace, asked establishments and individual researchers who want to explore the possibilities of using fresh satellite data for different geospatial applications to contact the company and take advantage of this exciting opportunity."

This mission will establish ABA as fully capable of manufacturing satellites on its own. "AFR is the first remote-sensing satellite the company launched and it will deliver a panchromatic image with a resolution of five metres and a swath of 70 kilometres," Bharath Simha Reddy P, company's business development manager, said. He added that there were plans to launch 3-4 missions over a period of 2-3 years to illustrate the capabilities of the company's satellite payloads.

About Azista BST Aerospace

It is an Indo-German satellite-making collaboration. Azista Industries Pvt. Ltd of India owns 70 percent of the company and Berlin Space Technologies GmbH of Germany owns the other 30 percent in Ahmedabad, Gujarat, for manufacturing small 'Made in India' satellites for the world market.

ABA has an installed yearly manufacturing capacity of 100 microsattellites. This makes it India's largest satellite manufacturing facility. ABA also provides other satellite-makers with subsystems and has plans to start manufacturing tiny satellites for both military and civilian use. The company aims at manufacturing around 100 satellites each year, each spacecraft of between 50 and 200 kilograms in weight.

Future plans

Azista BST Aerospace is yet undecided if it will own a constellation of satellites and make money selling data gathered by those satellites. There are plans to sell Remote-sensing data collected by the first satellite. BS Reddy P says data acquired from the first satellite may be sold to the agriculture, strategy and analytics sectors. Most of these customers are located in South-East Asia and other locations, one of which is India.

From ISpA

In an official statement, Lt Gen AK Bhatt (Retd), Director-General, Indian Space Association (ISpA), said, "The satellite launched will enable a variety of critical applications for civilian and defence purposes."

<https://www.financialexpress.com/business/defence-indian-startup-azista-bst-aerospaces-first-satellite-launched-by-spacex-3124736/>

Scientists Achieve 1,000 Km Quantum Key Distribution

A point-to-point long-distance quantum key distribution (QKD) over a distance of 1,002 km has been achieved by scientists from the University of Science and Technology of China (USTC) of the Chinese Academy of Sciences (CAS), and their collaborators from Tsinghua University, Jinan Institute of Quantum Technology, and Shanghai Institute of Microsystem and Information Technology (SIMIT), CAS. This milestone not only sets a new world record for non-relay QKD but also provides a solution for high-speed intercity quantum communication. The results were published in Physical Review Letters on May 25th.

QKD is based on the principles of quantum mechanics and enables secure key distribution between two remote parties. When combined with the "one-time pad" encryption method, it can achieve the highest level of security for confidential communication. However, the distance of QKD has been limited by factors such as the channel loss and system noise.

The twin-field QKD (TF-QKD) using sending-or-not-sending (SNS) protocol was demonstrated in the experiment, improving the relation between the key rate and channel transmittance from a linear η to its square root η . Therefore, it can achieve a much longer secure distance than traditional QKD protocols.

To achieve long-distance QKD, the research team collaborated with Yangtze Optical Fiber and Cable Joint Stock Limited Company (YOFC) and used ultra-low-loss fiber based on pure silica core technology, which achieved a maximum attenuation of 0.16 dB/km. SIMIT developed ultra-low-noise superconducting single-photon detectors.

By implementing multiple filters at temperatures of 40 K and 2.2 K to suppress dark counts caused by thermal radiation, the noise of the single-photon detectors was reduced to around 0.02 cps. Furthermore, the team also developed a dual-band phase estimation scheme to avoid the spontaneous Raman scattering noise, reducing the system noise to below 0.01 Hz.

Based on the aforementioned technological developments, the team achieved TF-QKD over a record distance of 1,002 km, with a key rate of 0.0034 bps. This work not only verifies the feasibility of the SNS-TF-QKD scheme at extremely long distances but also demonstrates that this protocol can achieve high key rates in many practical scenarios.

The success of this study holds significant implications for the advancement of secure quantum communication. It opens up new possibilities for long-distance quantum key distribution and paves the way for the realization of high-speed intercity quantum communication networks.

<https://phys.org/news/2023-06-scientists-km-quantum-key.html>

