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DRDO News

DRDO on Twitter

 **DRDO**  @DRDO_India 

[#DRDOUpdates](#) | Public Accounts Committee (PAC) of Parliament has taken study tour to Terminal Ballistic Research Laboratory (TBRL) at Chandigarh on 3rd Jun 2023.
[@DefenceMinIndia](#)
[@SpokespersonMoD](#)



12:42 pm · 5 Jun 2023 · **15.8K** Views

38 Retweets **356** Likes **1** Bookmark

    

 **DRDO**  @DRDO_India · 21h 

Hon'ble Chairman of PAC, Shri Adhir Ranjan Chowdhury inaugurated the exhibition where indigenously developed technologies & products were shown including live demonstration. Members of committee expressed keen interest in the TBRL activities and projects.

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DRDO Retweeted



A. Bharat Bhushan Babu
@SpokespersonMoD

RM Shri @rajnathsingh and US Secretary of Defence Mr. Lloyd J. Austin III @SecDef, today held talks at #ManekshawCentre. Also seen are #CDS Gen Anil Chauhan, Defence Secretary Shri @girdhararamane and Secy, Dept of Defence R&D & Chairman @DRDO_India Dr Samir V Kamat.



रक्षा मंत्री कार्यालय/ RMO India and 5 others

12:46 pm · 5 Jun 2023 · 11.6K Views

Defence News

Defence Strategic: National/International



Press Information Bureau
Government of India

Ministry of Defence

Mon, 05 Jun 2023

Raksha Mantri Shri Rajnath Singh & US Secretary of Defence Mr Lloyd Austin Hold Talks in New Delhi

Review the robust defence cooperation activities; Focus on co-development of new technologies and co-production

Roadmap concluded for US-India Defence Industrial Cooperation for next few years

Raksha Mantri Shri Rajnath Singh held a bilateral meeting with US Secretary of Defence Mr Lloyd Austin in New Delhi on June 05, 2023. The meeting was warm and cordial. The two sides discussed a substantial range of bilateral defence cooperation issues, with particular focus on identifying ways to strengthen industrial cooperation.

The two Ministers explored ways of building resilient supply chains. Both sides will identify opportunities for co-development of new technologies and co-production of existing & new systems and facilitate increased collaboration between defence start-up ecosystems of the two countries. Towards these objectives, they concluded a roadmap for US-India Defence Industrial Cooperation which shall guide the policy direction for the next few years.

Both sides reviewed the robust and multifaceted bilateral defence cooperation activities and agreed to maintain the momentum of engagement. They welcomed the inaugural dialogues held recently focusing on Defence Artificial Intelligence and Defence Space. They also discussed the regional security issues given their shared interest in maintaining peace and stability in the Indo-Pacific region. Senior officials from Ministry of Defence, including Chief of Defence Staff General Anil Chauhan, Defence Secretary Shri Giridhar Aramane and Secretary, Department of Defence R&D and Chairman Defence Research and Development Organisation (DRDO) Dr Samir V Kamat, participated in the meeting.

The delegation-level talks were preceded by a Tri-Service Guard of Honour to Secretary Austin. The US Secretary of Defence arrived in New Delhi on June 04, 2023 on a two-day visit.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1929884>



Tue, 06 Jun 2023

China in Focus as Singh Meets US Defence Secretary

India on Monday briefed the United States on the situation along the Line of Actual Control (LAC) in eastern Ladakh, where the Indian Army and the Chinese People's Liberation Army have been locked in a border row for more than three years, the Chinese military build-up across the contested LAC, and countermeasures taken by India to deal with any contingency during talks between defence minister Rajnath Singh and his American counterpart Lloyd J Austin, officials aware of the matter said.

“The regional security situation, including the latest developments along the LAC and Pakistan-backed terror, was discussed during the delegation-level talks. Both sides have been tracking China's moves closely in the region as well as in the Indo-Pacific,” said one of the officials cited above, asking not to be named.

India and China have held 18 round of talks to ease tensions along the LAC but outstanding problems at Depsang and Demchok are still on the negotiating table. Despite four rounds of disengagement from Galwan Valley, Pangong Tso, Gogra (PP-17A) and Hot Springs (PP-15), the Indian and Chinese armies still have more than 60,000 troops each and advanced weaponry deployed in the Ladakh theatre. China's expansion of airfields along the LAC since 2020 has created capabilities for its military to conduct a wider range of operations, and to counter India's comparative advantages in some areas, according to an analysis of satellite imagery by HT last week.

The changes on the ground since the military standoff on the LAC began in May 2020 show that China has embarked on a massive expansion of airfields, helipads, railway facilities, missile bases, roads and bridges, both for the faster deployment of troops and to create a range of offensive capabilities, HT reported on June 1.

Apart from Singh, Austin also held talks with national security adviser Ajit Doval.

“During his meetings, the Secretary and his counterparts exchanged perspectives on a range of regional security issues and committed to collaborating closely with India in support of our shared vision for a free and open Indo-Pacific,” the US Department of Defense said in a statement. This comes at a time when China is pushing for greater influence in the Indo-Pacific.

Austin told reporters that the world was witnessing bullying and coercion by China, and Russian aggression against Ukraine that seeks to redraw borders and threatens national sovereignty. “Democracies must now rally together in common interests and shared values. Preserving and protecting freedom is essential to peace and prosperity and requires vigorous leadership from the US and India,” he said.

Doval and Austin exchanged views on regional and global security issues of concern, including maritime security in the Indian Ocean region. “The Secretary welcomed Mr Doval’s perspective about shared security interests and objectives, including his ideas for greater maritime collaboration...In all of his engagements, the Secretary underscored the centrality of the US-India partnership to maintaining peace and security in the Indo-Pacific region,” the DoD statement said.

India has consistently called for a free, open and inclusive order in the Indo-Pacific, pivoting on respect for sovereignty and territorial integrity of all nations, while stressing on peaceful resolution of disputes through dialogue and under the framework of international laws at a time when China claims large portions of the disputed South China Sea, and its aggressive moves in the region threaten to escalate tensions.

“India-US partnership is critical for ensuring a free, open and rules-bound Indo-Pacific region. We look forward to closely working with the US across the domains for capacity building and further consolidating our strategic partnership,” Singh wrote on Twitter on Monday.

India is keeping tabs on China’s aggressive moves in the South China Sea and taking steps to ensure that the Chinese navy doesn’t muscle its way into the Indian Ocean where combat-ready Indian warships are carrying out round-the-clock surveillance for any unusual activity.

<https://www.hindustantimes.com/india-news/india-briefs-us-on-china-s-military-build-up-along-line-of-actual-control-in-ladakh-amid-border-row-terrorism-concerns-101685991223639.html>

The Tribune

Mon, 05 Jun 2023

India-US Focus: Co-development and Co-production of Military Technology

India and US today announced to focus on ‘co-development and co-production of new and existing technologies.

Notably, the two countries will start negotiations on ‘security supply agreement’ and ‘reciprocal supply agreement’. These would help sharing of technology between companies of either country. It is a kind of foundational agreement, sources said.

In the past the two countries have inked key defence and security pacts over the past few years, including the Logistics Exchange Memorandum of Agreement (LEMOA) in 2016 that allows their militaries to use each other's bases for repair and replenishment of supplies.

A statement of the Indian Ministry of Defence gave details of the bilateral meeting between Indian Defence Minister Rajnath Singh and his counterpart US Secretary of Defence Lloyd Austin today saying the two sides 'concluded a roadmap that will guide policies on US-India defence industrial cooperation for the next few years'.

It said the two Ministers explored ways of building resilient supply chains. "Both sides will identify opportunities for co-development of new technologies and co-production of existing and new systems and facilitate increased collaboration between defence start-up ecosystems of the two countries". "They concluded a roadmap for US-India Defence Industrial Cooperation which shall guide the policy direction for the next few years", the MoD said.

After the meeting Austin told reporters that the US has more desire to share defence technology with India. In June 2016, the US designated India a "Major Defence Partner" paving way for sharing of critical military equipment and technology.

The two sides focus on identifying ways to strengthen industrial cooperation and agreed to continue the multifaceted bilateral defence cooperation activities.

They welcomed the inaugural dialogues held recently focusing on advanced domains like defence artificial intelligence and defence space – conducted on May 22 in New Delhi. The US had then issued a statement saying two sides have commitment "to expand and deepen bilateral defence cooperation in advanced domains".

The India-US partnership is critical for ensuring a free, open and rules-bound Indo-Pacific region, Defence Minister Rajnath Singh said on Monday after holding wide-ranging talks with his American counterpart Lloyd Austin.

Rajnath Singh said: "India-US partnership is critical for ensuring a free, open and rules-bound Indo-Pacific region. We look forward to closely work with the US across the domains for capacity building and further consolidating our strategic partnership".

India and US are in discussion on General Electric's proposal to share technology with India for fighter jet engines and New Delhi's plan to procure 30 MQ-9B armed drones at a cost of over USD 3 billion from US manufacturer General Atomics Aeronautical Systems Inc.

On Friday night Austin while speaking at the Shangri-La Dialogue in Singapore on "Our initiative on Critical and Emerging Technology with India" said let us explore new ways to co-develop key defence platforms. President Joe Biden and Prime Minister Modi announced in May last year the US-India initiative on Critical and Emerging Technology (iCET) to elevate and expand the strategic technology partnership and defence industrial cooperation between the two countries.

The iCET is expected to forge closer linkages between the government, academia and industry of the two countries in areas such as artificial intelligence, quantum computing, 5G and 6G, biotech, space and semiconductors.

Senior officials from Ministry of Defence, including Chief of Defence Staff General Anil Chauhan, Defence Secretary Giridhar Aramane and Chairman Defence Research and Development Organisation (DRDO) Dr Samir V Kamat, participated in the meeting.

The delegation-level talks were preceded by a Tri-Service Guard of Honour to Secretary Austin.

<https://www.tribuneindia.com/news/nation/rajnath-singh-holds-talks-with-us-defence-secretary-lloyd-austin-514383>

India, US Finalise Roadmap for Fast-tracking Defence Tech Transfer, Co-development of Military Platforms

India and the US on Monday concluded an ambitious roadmap for defence industrial cooperation to fast-track technology tie-ups and co-production of military platforms such as air combat and land systems, a move that comes in the wake of China's increasingly aggressive behaviour in the Indo-Pacific region.

The new framework for cooperation was finalised during talks between Defence Minister Rajnath Singh and his visiting American counterpart Lloyd Austin, two weeks ahead of Prime Minister Narendra Modi's state visit to Washington.

Singh and Austin also decided to initiate negotiations on a framework for the security of supply arrangement and a reciprocal defence procurement agreement, which will promote long-term supply chain stability.

The US defence secretary said the US-India cooperation matters "because we all face a rapidly changing world. We see bullying and coercion from the People's Republic of China and Russian aggression against Ukraine that seeks to redraw borders and threatens national sovereignty."

The Pentagon said the initiative aims to change the "paradigm" for cooperation between the US and Indian defence sectors, including the implementation of a set of specific proposals that could provide India access to cutting-edge technologies and support its defence modernisation plans.

It is learnt that Singh and Austin also touched upon General Electric's proposal to share technology with India for fighter jet engines and New Delhi's plan to procure 30 MQ-9B armed drones for over USD 3 billion from US defence major General Atomics Aeronautical Systems Inc.

The jet engine deal is likely to be announced during Prime Minister Modi's visit to the US.

People familiar with the matter said both projects will be part of the roadmap that will also provide for cooperation in areas of intelligence sharing, surveillance and reconnaissance, munitions and the undersea domain.

"We established an ambitious new roadmap for defence industrial cooperation with a fast-track (and) high-priority for co-development and co-production projects and to build closer ties between our defence industries," Austin said at a media briefing.

"We look forward to advancing some of those projects during the upcoming visits," he said, indirectly referring to Modi's upcoming tour of the US.

Describing the US-India relationship as one of the most "consequential" ones, he said Washington only shares technologies with countries that it absolutely trusts. "There is an increasing desire for us to share (them) with partners here in India."

Austin said the US-India partnership is a "cornerstone" for a free and open Indo-Pacific and the deepening of the ties showed how technological innovation and growing military cooperation between the two "great powers" can be a force for global good.

The US defence secretary also held separate talks with National Security Advisor Ajit Doval.

In a statement, the defence ministry said both sides will identify opportunities for the co-development of new technologies and the co-production of existing and new systems besides facilitating increasing collaboration between defence start-up ecosystems of the two countries.

"Towards these objectives, they concluded a roadmap for US-India defence industrial cooperation which shall guide the policy direction for the next few years," it said.

The ministry said the meeting between Singh and Austin was "warm and cordial" and the two sides discussed a "substantial range" of bilateral defence cooperation issues, with a particular focus on identifying ways to strengthen industrial cooperation.

The Pentagon said the new roadmap will "fast-track technology cooperation and co-production in areas such as air combat and land mobility systems; intelligence, surveillance, and reconnaissance; munitions; and the undersea domain."

"The Secretary and Minister Singh also pledged to review regulatory hurdles impeding closer industry-to-industry cooperation and to initiate negotiations on a Security of Supply Arrangement and a Reciprocal Defence Procurement agreement, which will promote long-term supply chain stability," it said.

In a series of tweets, Singh said the talks revolved around enhancing defence cooperation in several areas including the convergence of strategic interests and security cooperation.

"India-US partnership is critical for ensuring a free, open and rules-bound Indo-Pacific region. We look forward to closely work with the US across the domains for capacity building and further consolidating our strategic partnership," Singh said.

The Pentagon said Austin and Singh also committed to strengthening operational collaboration across all military services, with an eye to supporting India's leading role as a security provider in the Indo-Pacific.

"They discussed new opportunities to strengthen information sharing and increase cooperation in the maritime domain. On this note, Secretary Austin welcomed India's leadership role in the Quad Indo-Pacific Maritime Domain Awareness Initiative (IPMDA), which will provide cutting-edge domain awareness capability to countries across the Indo-Pacific region," it said.

In his meeting with NSA Doval, Austin exchanged views about regional and global security issues of concern, including maritime security in the Indian Ocean Region.

"The Secretary welcomed Doval's perspective about shared security interests and objectives, including his ideas for greater maritime collaboration," the Pentagon said in a statement.

"In all of his engagements, the Secretary underscored the centrality of the US-India partnership to maintaining peace and security in the Indo-Pacific region," it added.

The defence ministry said both sides reviewed the robust and multifaceted bilateral defence cooperation activities and agreed to maintain the momentum of engagement.

"They welcomed the inaugural dialogues held recently focusing on defence artificial intelligence and defence space. They also discussed the regional security issues given their shared interest in maintaining peace and stability in the Indo-Pacific region," it said.

In his remarks at the media briefing, Austin said that as the world's two largest democracies, India and the US have a unique role in preserving the rules-based international order that "keeps us all secure".

"Our global and strategic partnership has continued to rapidly grow. Today the US-India partnership is a cornerstone for a free and open Indo-Pacific. Our deepening bond shows how

technological innovation and growing military cooperation between two great powers can be a force for global good," he said.

Secretary Austin described his talks with Singh and Doval as "productive"

"Democracies must now rally together in common interests and shared values. Preserving and protecting freedom are essential to peace and prosperity and require vigorous leadership from the US and India," he said.

"So we still have a lot of work to do. I am confident that the US-India partnership will help secure an open and prosperous future for the Indo-Pacific and the wider world," he said.

The Pentagon said Austin and Singh also discussed the growing importance of defence innovation and cooperation in emerging domains such as space, cyberspace, and artificial intelligence.

"They also welcomed the establishment of the India-US Defence Acceleration Ecosystem (INDUS-X), a new initiative to advance cutting-edge technology cooperation," it said.

"The initiative, which will be launched by the US-India Business Council on June 21, is designed to complement existing government-to-government collaboration by promoting innovative partnerships between US and Indian companies, investors, start-up accelerators, and academic research institutions," it said.

The US Defence Secretary arrived in New Delhi on Sunday on a two-day tour. It is Secretary Austin's second visit to India. His previous trip to the country was in March 2021.

"Great to meet again with my friend @rajnathsingh and thank him for his unwavering commitment to U.S.-India defense relations. His leadership has helped paved the way for deeper collaboration, joint exercises, and technology sharing between our two countries," Austin tweeted.

In a major move, President Joe Biden and Prime Minister Modi announced in May last year the US-India initiative on Critical and Emerging Technology (iCET) to elevate and expand the strategic technology partnership and defence industrial cooperation between the two countries.

The iCET is expected to forge closer linkages between the government, academia and industry of the two countries in areas such as artificial intelligence, quantum computing, 5G and 6G, biotech, space and semiconductors.

The India-US defence and strategic ties have been on an upswing in the last few years.

The two countries have inked key defence and security pacts over the past few years, including the Logistics Exchange Memorandum of Agreement (LEMOA) in 2016 that allows their militaries to use each other's bases for repair and replenishment of supplies.

The two sides also signed COMCASA (Communications Compatibility and Security Agreement) in 2018 which provides for interoperability between the two militaries and provides for the sale of high-end technology from the US to India.

In October 2020, India and the US sealed the BECA (Basic Exchange and Cooperation Agreement) agreement to further boost bilateral defence ties.

The pact provides for sharing of high-end military technology, logistics and geospatial maps between the two countries.

<https://economictimes.indiatimes.com/news/defence/india-us-to-establish-ambitious-roadmap-for-defence-industrial-cooperation/articleshow/100763028.cms>

Business Standard

Tue, 06 Jun 2023

Allow Indians to Work on US Defence Projects, Says Venture Capitalist

Ahead of Prime Minister Narendra Modi's state visit to the US, an eminent Indian-American venture capitalist has said Indians should be allowed to work on US defense projects as it would give a big boost to the bilateral ties and reduce the cost of innovation in the US defense sector.

Prime Minister Modi, when he comes here, should ask for that, said Venkatesh Shukla, general partner, Monta Vista Capital, and former TiE Global chairperson. Opening up of the US defense sector for Indian software companies would help reduce the security vulnerabilities of the US defense sector, would give a big boost to bilateral ties, boost the innovation ecosystem in India and reduce the cost of innovation in the US defense sector, he asserted.

"One area that is huge here. It's completely untapped by India, and that area is ..it's software for the Department of Defense and all the critical infrastructure," Shukla told PTI in an interview.

The former chairman of TiE Global said the critical infrastructure in this country is all vulnerable to cyber-attacks.

"Because they're running on COBOL, running on 30-year-old Linux systems, they're running on operating systems that have known problems. The US just does not have enough manpower," he said. "If an Indian sitting in India could work on that project. So instead of spending USD200,000; now you spend USD30-40,000 increasing the capacity to improve the system several times.

"But Indians are not allowed to work on defense projects. Ability of Indians to work on defense projects, ability of India to work on critical infrastructure projects in the US. It's a massive opportunity. Massive opportunity. And, if I were to give one advice to Modi it is that. Ask for that," Shukla said.

"The highest levels of the intelligence community here sweat every day that rogue countries or rogue agencies from these countries could attack and paralyze the key systems here, the critical infrastructure here. It's just a matter of choosing the time and opportunity. They know it. They just don't have a solution for it. Solution is standing right in front of them," he said.

"It's not that they don't wanna do. It's that people don't know what to offer to India. India does not know what to ask for. I'm telling you this is the truth," Shukla told PTI. "Indian citizens should be allowed to work on your defense software projects."

"Right now, the US is trying to sell India the armament. Instead of selling the armament, you say, we'll give you business. Now India has money to buy or whatever. The US doesn't know what to offer India. India does not know what to ask for. I'm telling you at the, at the highest level, it's a complete win-win relationship," he said.

Shukla said India is on the cusp of becoming a global hub of innovations, but for a set of necessary reforms including bureaucratic structure and cumbersome compliances.

It's very pleasing and satisfying that India has become one of the biggest centers for startup innovation, he said. "If the policies were to become more favourable, India would be after the US, India would be the place where the innovation for the rest of the world will come from. There's a lot of things to be improved," he said.

Among the major hurdles that the Indian Startups face is compliance burden and red tape, he said.

"There are a lot of things. The burden of compliance. But the fundamental thing is there's a political will to make things easier for the startups. Why doesn't it happen? The reason it does not happen is that each agency, each department, they don't have a shared collective understanding of what the desirable outcome is. And if we don't have that, then each one optimizes what they think is best for it," he said.

So, if you are a multinational company based in India, small startup, which has branches all over India, the reporting requirement to RBI and, and permission requirement, even for small transaction is so high that people decide that, let's just set it up in Dubai; let's just set it up in Singapore," Shukla said.

"As soon as you have operations in more than one country, the setup in India is the compliance burden and the speed of transaction is not what is needed," he said acknowledging that while the atmosphere inside the country is startup friendly, it doesn't provide enough incentives to become global.

"This is not because people don't want it to be global. It's because each agency, the Ministry of Corporate Affairs, has its own set of laws. RBI I has its own set of things. SEBi has its own income. The Income Tax department has its own. And some of these things work against each other. That's where the problem is," he said.

https://www.business-standard.com/world-news/allow-indians-to-work-on-us-defence-projects-says-venture-capitalist-123060600078_1.html



Tue, 06 Jun 2023

‘India’s Reliance on Russian Arms not in Germany’s Interest’: German Defence Minister

German Defence Minister Boris Pistorius stated on Monday that India's continuing dependence on Russian weapons is not in Germany's interest, as reported by German News Agency Deutsche Welle (DW).

Pistorius expressed these remarks while he was in Jakarta before embarking on a four-day visit to India. During his visit to India, he will be accompanied by representatives from Germany's defence sector.

The Ministry of Defence has released an official statement indicating that Germany's Federal Minister of Defence, Boris Pistorius, will be arriving in India on June 6 for a four-day visit.

"It is not up to Germany to change that on our own," Pistorius said in an exclusive interview with DW in Jakarta, Indonesia.

Pistorius stressed, "This is an issue we have to solve jointly with other partners. But of course, we can't have an interest in the long run that India is so dependent on Russia's delivery of weapons or other materials. I want to send a signal that we are willing to support our partners, our reliable partners like Indonesia, and India. And that includes, for example, the possibility of delivering submarines."

During the visit, German Chancellor Scholz will engage in discussions with his Indian counterpart Rajnath Singh, primarily focusing on industrial cooperation, the potential for submarine construction in India and unresolved agreements.

Germany's meaningful act of dispatching the frigate Bayern to the Indo-Pacific region in 2021, including a visit to Mumbai in January of that year, served as a symbolic display of strategic involvement in the region through greater military deployment. Additionally, a recent agreement on triangular cooperation between India and Germany, focusing on joint development projects in third countries, represents a significant stride in advancing this commitment.

Meanwhile, the first-ever France-India-Germany military exercise drill is slated to take place in 2024 towards enhanced security and defence collaboration.

India's Defence Minister Rajnath Singh is set to host German Defence Minister Boris Pistorius on Tuesday. This meeting comes just a day after Rajnath Singh engaged in comprehensive discussions with US Defence Secretary Lloyd Austin. The talks between the Indian and US defence officials covered a wide range of topics, including strategic cooperation and the unveiling of a roadmap for defence industrial collaboration.

<https://www.livemint.com/news/world/indias-reliance-on-russian-arms-not-in-germany-s-interest-german-defence-minister-11686022816398.html>



Tue, 06 Jun 2023

Germany keen on Submarine Tech Cooperation with India, Says Pistorius

Germany is keen on a potential cooperation with India on submarine technology from ThyssenKrupp Marine Systems (tkMS), German Federal Minister of Defence Boris Pistorius, who is on a four-day visit to India, told The Indian Express in an interview.

ThyssenKrupp Marine Systems of Germany is a group and holding company of providers of naval vessels, surface ships and submarines.

Asked about the absence of big-ticket contributions of German defence consortiums to the Indian arsenal, Pistorius said, "Indeed, during my visit here in India this might be discussed. There will also be an exchange with industry. I'm looking forward to potential cooperation on key technology with regard to submarines from tkMS."

Pistorius is on a four-day visit to New Delhi from Monday. He is scheduled to meet Defence Minister Rajnath Singh for bilateral talks on Tuesday. He is also likely to meet a few defence start-ups during an event organised by Innovations for Defence Excellence (iDEX) in New Delhi.

Later in the week, he will travel to Mumbai where he is likely to visit Headquarters, Western Naval Command, and Mazagon Dock Shipbuilders Limited.

For its dwindling submarine fleet, the Navy is looking to procure six advanced diesel-electric submarines under Project 75I—a deal which is yet to move forward due to various technical parameters. MDL and L&T will be partnering with a foreign manufacturer to make the submarines.

A proposal from Germany to India on providing the submarine technology might be on cards, given that it and South Korea are among the manufacturers which meet the technical criteria for the deal.

Asked about Germany's tightrope walk with western alliances, Russian energy and Chinese economic influence and the pivot to possible future defence collaborations with India, Pistorius said Germany has managed to decrease its energy dependency from Russia surprisingly well.

“We pursue a policy of de-risking but not decoupling. Second, while re-focusing on deterrence and defence in Europe, going back to the future, the Bundeswehr will—at the same time—consolidate its engagement in the Indo-Pacific,” he said.

“For land-centered Armed Forces from the heart of Europe without oversea territories in the region this is quite a signal,” he said.

He said India is a strategic partner, and both countries share values and interests. “Next year, when the German Navy will be deployed again in the region, we plan to hold a maritime exercise with the Indian Navy. But our cooperation does not have to be limited to this dimension,” he said.

“Germany and India share common values and common interests especially with regard to the rules- based international order, multilateralism and open sea lines of communication. Based on this foundation, increased contacts are a natural consequence,” he said. He added he is looking forward to talking to start-up entrepreneurs as part of his agenda in India and will also take time to get a little more familiar with “your huge and beautiful country.”

Most importantly, he said, both countries have a steady increase of exchanges of their Armed Forces in the framework of their naval deployments and the joint exercising of their Air Forces. He said after the successful port visit of Germany’s Navy in Mumbai in 2022, Germany is planning another one to Goa of two German navy ships next year which will include joint exercises.

Pistorius said Germany and India have maintained a Strategic Partnership for 23 years.

“Our High Defence Committee is the most visible manifestation of our growing strategic relations. We have established this format with very few other non-NATO countries,” he said, adding: “Its core tasks remain security policy and armament cooperation. I’m looking forward to next month’s meeting in Berlin to follow-up on my talks here today.”

<https://indianexpress.com/article/india/germany-keen-on-submarine-tech-cooperation-with-india-says-pistorius-8647436/>



Tue, 06 Jun 2023

Modi’s ‘Atmanirbhar Bharat’ Mission Depends on Success of his US, France Visits

By Shishir Gupta

The success of Prime Minister Narendra Modi’s “Atmanirbhar Bharat” mission aimed at developing an advanced military-industrial complex in India will depend on his upcoming visits to the US on June 22 and to France on July 14.

While President Joe Biden has invited him for a state visit with a rare second opportunity to address the Congress, French President Emmanuel Macron has invited him to be part of the Bastille Day celebrations with a tri-services contingent of Indian military participating in the parade. There are some 4000 war memorials in France, which remember the contributions of Indian soldiers in the two great wars last century.

Even though archrival China has tried to belittle Indian military design, development and manufacturing through junior-level military officers briefing media on the sidelines of the recently concluded Shangri La Dialogue, the Modi government has taken significant steps to get its hardware design and manufacturing in order. While these junior PLA officials parrot the line that India is no military threat to China, they also conversely try to pitch the line that New Delhi will

not be a loyal partner to Washington. Fact is that they are wrong on both counts as only India can keep more than 80,000 PLA troopers with aircraft, rockets and big guns engaged on its northern borders and distract China from any military adventure on Taiwan, which will draw Japan into military emergency and cause havoc in the South China Sea. This apart, only India has the navy prowess to counter the PLA Navy challenge in the Indian Ocean and beyond. Lastly, the Indian Army stand-offs with belligerent PLA on Doklam plateau in 2017 and in Galwan on June 15, 2020, shows the Modi government's decisive ability to take on a military challenge and come out without yielding an inch of territory or military pride unlike in the past. Both incidents could have flared into a full-fledged conflict. Apart from the atmosphere of PM Modi's visit to US, the content of the visit will reveal the depth of India-US relations today with the Biden government ready to part with top-end military technology for manufacturing in India. Even though the Biden government is still to give approval to General Electric to manufacture F-414 jet engines to power Indian Tejas Mark II fighter, it is now given that GE will manufacture the engine on themaximum transfer of technology with Indian HAL and the partnership will be later upgraded to other engines. The US is also ready to sell top-end armed drones to India and even look at manufacturing surveillance drones at a later day. With China acquiring hybrid warfare capabilities, the US is ready to share cyber-security tools and experts with India in order to firewall critical infrastructure against attacks from Beijing-sponsored hackers.

The visit to France is equally important if not more in terms of Paris ready to manufacture hardware in India and even use these manufacturing and fabrication plants for future military exports to third countries. Today, India and France are looking towards the construction of air independent propulsion equipped submarines at Mazagon Dockyards to provide the Indian Navy with six more latest submarines under the Project 75 India category and also using the same facility for building submarines for export to Indonesia and others. As India's closest military partner, France is even willing to build nuclear-powered and conventionally armed submarines for India this decade to meet the Chinese challenge.

While Airbus is manufacturing C-295 transport aircraft in India, French aircraft engine maker Safran is ready to co-develop and then manufacture a 100-110 Kilo Newton aircraft jet engine which will power DRDO-designed India's twin-engine fighter. There is also a strong possibility that French Dassault may provide two squadrons of Rafale-Maritime for INS Vikrant aircraft carrier and look towards manufacturing of Rafale fighters in India in the near future.

While all these proposals are under serious consideration and not pipedreams, the decision ultimately lies with India and its manufacturing and financial capacity to accept and absorb the new technology. The Indian decision to stay strategically autonomous is based on its national interest and is today ready to partner with the West to counter the challenge from China and its satellites in the Indian sub-continent.

<https://www.hindustantimes.com/india-news/modis-atmanirbhar-bharat-mission-depends-on-success-of-his-us-france-visits-101686022699855.html>



Mon, 05 Jun 2023

Army Chief Meets Bangladeshi Counterpart, Discusses Bilateral Defence Ties

Indian Army chief Gen Manoj Pande on Monday met his Bangladeshi counterpart General SM Shafiuddin Ahmed here and discussed various aspects of mutual interest and explored ways to further expand bilateral defence and security ties.

Gen Pande, who arrived here earlier Monday on a two-day visit to Bangladesh - his second trip to the country as Army chief, also interacted with Lt Gen Waker-Uz-Zaman, the Principal Staff Officer of the Armed forces division.

The Indian Army chief visited Bangladesh in July last year on his first foreign visit after assuming charge of the top post.

"General Manoj Pande #COAS interacted with General SM Shafiuddin Ahmed, Chief of Army Staff, #BangladeshArmy & Lieutenant General Waker-Uz-Zaman, Principal Staff Officer, Armed Forces Division, #Bangladesh and discussed aspects of mutual interest," the Additional Directorate General of Public Information said in a tweet.

The Army chief also laid a wreath at Shikha Anirban and paid tributes to soldiers who laid down their lives for the Liberation of Bangladesh. He also received the Guard of Honour at Senakunja and planted a tree to commemorate the friendship between the two Armies.

On Tuesday, Gen Pande will be reviewing the Passing Out Parade (POP) of officer cadets of the 84th 'Long Course' at the Bangladesh Military Academy (BMA) in Chattogram.

During the parade, the Army Chief will be presenting the 'Bangladesh India Friendship Trophy' instituted for the best foreign cadet from friendly foreign countries of the passing out course from the BMA.

The first trophy this year is being awarded to officer cadet Everton of Tanzania.

This trophy is in reciprocation to the 'Bangladesh Trophy and Medal' instituted at the Indian Military Academy (IMA), Dehradun in December 2021 for the Best foreign cadet passing out the course, the Army said in a statement.

The Army chief will be reviewing the POP at IMA, Dehradun on June 10 and present the Bangladesh Medal and the trophy.

The Bangladesh Chief of Army Staff visited India in April this year and reviewed the passing out parade at the Officers Training Academy in Chennai.

<https://www.ndtv.com/india-news/army-chief-general-manoj-pande-meets-bangladeshi-counterpart-discusses-bilateral-defence-ties-4095660>



Tue, 06 Jun 2023

Sixth Edition of India-Maldives Exercise 'Ekatha' Involving Navies Underway

Indian Navy divers and Marine Commandos are in the Maldives for the sixth edition of Exercise Ekatha with Maldives National Defence Force (MNDF) from 4th June to 3rd July. The annual exercise is conducted between the two forces to enhance interoperability in diving and special operations.

Earlier, the fifth edition was held from 5th September 2022 to 3rd October 2022, Chief of Defence Force Major General Abdullah Shamaal handed the certificates to the Indian Navy training team.

The High Commissioner of India to the Maldives, Munu Mahawar and the Flag Officer Commanding-in-Chief of Southern Naval Command, Indian Navy, Vice Admiral M. A. Hampiholi handed over certificates to the Marines of Special Operations Group (SOG) of the MNDF Marine Corps.

Chief of Defence Force Major General Abdullah Shamaal as well as the Flag Officer Commanding-in-Chief of Southern Naval Command, Indian Navy, Vice Admiral M. A. Hampiholi addressed the attendees at the ceremony.

Commander of MNDF Marine Corps, Special Operations Group, Captain Hussain Shafeeq delivered the opening and welcoming remarks while the conduct report of the exercise was reviewed by Lieutenant Commander of the Indian Navy training team, Mahesh Kumar.

The ceremony that concluded with the national anthem of Maldives was followed by the exchange of mementoes and a display of weapons used in the exercise.

Exercise taken part by 30 marines of MNDF Marine Corps, Special Operations Group and 10 marine commandos from the Indian Navy focused on combat shoot, VBSS, demolition, CQB, divator diving, rebreather diving, and diving operations.

Attendees at the closing ceremony included the Commandant of MNDF Marine Corps Brigadier General Wais Waheed, General Officers of MNDF, Commandant of MNDF Coast Guard Colonel Ibrahim Hilmy, Commander of MNDF Central Area Command Colonel Ahmed Fathih, Indian Defence Advisor to the Maldives Captain Mahesh C. Moudgil, some officer of MNDF Central Area Command, and officers of SOG.

<https://www.aninews.in/news/world/asia/sixth-edition-of-india-maldives-exercise-ekatha-involving-navies-underway20230606063306/>

Business Standard

Mon, 05 Jun 2023

India not a Security Threat, Unlikely to Catch up in Defence Sector: China

Currently, India is incapable of challenging China in defence manufacturing and military modernisation and thus poses no security threat to the country, Chinese delegates told the media on the sidelines of Shangri-La Dialogues in Singapore, as reported by the South China Morning Post (SCMP).

The delegates of the People's Liberation Army (PLA) said India is still far from catching China's military. This, they added, was especially true in the defence industry.

The SCMP report quoted Zhao Xiaozhuo, a senior colonel at the PLA Academy of Military Sciences, saying, "India is unlikely to catch up to China in the coming decades because of its weak industrial infrastructure, while China has built complex and systematic defence industrial platforms."

According to data released by the Stockholm International Peace Research (Sipri), India was the world's biggest arms importer between 2018 and 2022. Moreover, 31 per cent of its total weapons during the period came from Russia alone.

Zhao added that India's cooperation with Japan, the USA and Australia in the Quadrilateral Security Dialogue (Quad) would not impact the relations between New Delhi and Beijing at multilateral platforms like Brics and the Shanghai Cooperation Organisation (SCO).

The relations between China and India have been strained since the clashes between the two countries' armed forces in Galwan in 2020. Zhao added that despite the clashes, India is unlikely to be a "loyal partner" of the American Indo-Pacific strategy, mainly due to its independent diplomatic policy.

The PLA delegation said that China and its neighbours would prefer the "Asian model" to solve their territorial disputes, signalling that the Western countries must not mingle in these disagreements.

The report also added that China had set a deadline of 2027 to convert the PLA into a modern fighting force. Another expert, senior Colonel Cao Yanzhong, a research fellow at the PLA Academy of Military Sciences, said that China's other goals include building a blue-water navy by 2035 and having a first-class military on par with the US by 2049.

https://www.business-standard.com/world-news/india-not-a-security-threat-unlikely-to-catch-up-in-defence-sector-china-123060500631_1.html

THE ECONOMIC TIMES

Mon, 05 Jun 2023

What would it Mean if Ukraine Joined NATO?

Ukraine, fighting a devastating Russian invasion since February 2022, seeks to join NATO as quickly as possible but members of the Western military alliance are divided over how fast that step should be taken.

While eastern European countries want some sort of a road map to be offered to Kyiv at a NATO summit in Vilnius in mid-July, Western members such as the United States, France and Germany are wary of any move that might take the alliance closer to war with Russia.

The decision to invite a country into the North Atlantic Treaty Organization must be taken by consensus.

Following is a list of steps that Ukraine has already taken on its way to NATO membership, the challenges it still faces - and Russia's view of the developments.

BUCHAREST PROMISE

At its Bucharest summit in 2008, NATO agreed that Ukraine - which like Russia was part of the Soviet Union until its 1991 demise - would eventually join the alliance. But NATO leaders have so far stopped short of taking concrete steps to that end - such as giving Kyiv a so-called Membership Action Plan - that would lay out a timetable for bringing Kyiv closer to the bloc.

TIMELINES

In a rare visit to Kyiv in April, NATO Secretary-General Jens Stoltenberg underlined that Ukraine's "rightful place" was in NATO but gave no timeline. He later made clear Ukraine would not be able to join as long as the war with Russia rages on.

At the start of June Ukrainian President Volodymyr Zelenskiy acknowledged this position and said his nation understood it was impossible to be admitted to NATO while the war continued.

PROCEDURE

Article 10 of the Washington Treaty states that NATO membership is open to any "European state in a position to further the principles of this Treaty and to contribute to the security of the North Atlantic area".

Since 1999, most countries aiming to join NATO have participated in a so-called Membership Action Plan (MAP), a programme designed to help them meet certain political, economic and military criteria.

Membership candidates need to be functioning democracies that treat their minorities fairly, commit to the peaceful solution of conflicts and show they are able and willing to contribute militarily to NATO operations. It is unclear, however, what Ukraine's process to membership will look like. Despite not having been granted a MAP, the country's military has taken major steps in transitioning towards NATO standards since Russia's invasion 15 months ago.

This process is set to accelerate as Kyiv gradually runs out of Soviet-built arms and ammunition, while the West trains Ukrainian troops according to NATO standards and rushes more and more advanced weaponry to the country.

In the end, it will be up to the currently 31 member states to decide how swiftly and under what conditions Ukraine will be allowed to join NATO.

ARTICLE 5

By becoming a NATO member, Ukraine would come under the protective umbrella of Article 5 of the Washington Treaty that states that an attack on one ally is considered an attack on all allies.

NATO's mutual assistance clause lies very much at the heart of the alliance, which was formed in 1949 with the primary aim of countering the risk of a Soviet attack on allied territory.

At the same time, Article 5 is cited as one of the main reasons why Ukraine cannot join NATO while in conflict with Russia, as this might immediately draw the alliance into an active war.

THE RUSSIAN POSITION

The Kremlin has said it would cause problems for many years to come if Ukraine joined NATO. It has warned that Moscow would ensure its interests and security, which it says have been endangered for over two decades by the alliance's eastward enlargement towards European borders with Russia.

The Kremlin has long seen NATO's expansion into eastern Europe as evidence of Western hostility to Russia - something Western powers deny, saying the alliance is wholly defensive in nature - and has cited this as a key reason for its decision to send tens of thousands of troops into Ukraine on Feb. 24, 2022.

<https://economictimes.indiatimes.com/news/defence/what-would-it-mean-if-ukraine-joined-nato/articleshow/100770836.cms>

Science & Technology News



Press Information Bureau
Government of India

Ministry of Science & Technology

Mon, 05 Jun 2023

DST Supported Technologies Brings Solutions for Plastic Pollution of the Environment

A slew of technologies supported by the Department of Science and Technology (DST) are gearing us up to beat plastic pollution by tackling the increasing menace through reducing, reusing and recycling plastic, paving the path towards sustainable development.

Many of these technologies are being used at a pilot scale and scaling them up could bring relief from this ever growing challenge. The technology development and transfer division of the department funds technology development projects including materials, devices and processes

Pilot scale mobile plant converts plastic waste into fuel

A pilot scale vehicle-mounted mobile plant has been developed using an indigenously designed process to convert various types of plastic waste into carbon-densified HC-Oil (Hydrocarbon Oil) with maximum carbon recovery. The plant which operates under low stringent conditions in the presence of a selective, recyclable, reusable, robust, non-toxic, inexpensive catalyst brings a low-cost option to convert waste plastic to fuel.

Professor Aniruddha B Pandit, from Institute of Chemical Technology (ICT) Mumbai developed a process called ICT-Poly Urja which uses indigenously prepared patented Cu@TiO₂ catalyst for CTL (Catalytic Thermo Liquefaction) of several types of poly-olefinic plastic waste into HC-Oil 300 C in 30 min. The process leads to more than 85% feedstock conversion, and high-quality C and H elements enriched HC-Oil with a calorific value of 42 MJ/kg. The fuel can be burned to generate steam and power.

A series of mixed poly olefinic plastic waste samples with varying compositions were examined for CTL and it was discovered that all combinations of plastic wastes can be liquefied using CTL process with more than 80% HC-Oil production.

In comparison to traditional technologies such as pyrolysis and gasification, the CTL process requires significantly less energy due to moderate operating conditions. Besides, the plant can also be mounted on a mobile vehicle and the mobile plant provides several benefits in terms of operation and overall process economics.

The Poly-Urja process developed with support from DST provides a long-term, resilient, convenient, energy-efficient, and environmentally responsible method of transforming plastic waste into electricity. The Pilot scale vehicle mounted plant to convert 100kg/day of plastic waste into hydrocarbon oil is under fabrication and is scheduled to be ready by the end of 2023.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1930014>



Tue, 06 Jun 2023

Vision Pro: Here's the Science Behind Apple's Mixed-reality Headset

Apple on Monday unveiled its long-awaited mixed reality headset, called "Vision Pro" – the tech giant's first major product launch since launching its Apple Watch in 2014. The device, which will retail for \$3499 when it launches in early 2024, is aimed at developers and content creators, rather than average consumers. The headset, sci-fi as it sounds, could be the beginning of a new era not only for Apple but for the entire industry. Apple is calling the Vision Pro, the world's first spatial computer but what does it do? We simply the science behind the Vision Pro headset.

What is Apple's Vision Pro?

To put it simply, Apple's Vision Pro brings the digital into the real world by introducing a technology overlay into your real-world surroundings. Once you strap on the headset that is reminiscent of a pair of ski goggles, the Apple experience you must be familiar with by using iPhones or Mac computers is brought out into the real world.

But it is not really that simple. The Vision Pro follows in the lead of many other Apple devices—there are a lot of complex technologies underpinning what seems like a simple user interface and experience.

“Creating our first spatial computer required invention across nearly every facet of the system. Through a tight integration of hardware and software, we designed a standalone spatial computer in a compact wearable form factor that is the most advanced personal electronics device ever,” said Mike Rockwell, Apple’s vice president of the Technology Development Group, in a press statement.

How does the headset work?

Before we get into how the headset does it, it would perhaps be prudent to understand what it does. The mixed reality headset uses a built-in display and lens system to bring Apple’s new visionOS operating system into three dimensions. With Vision Pro, users can interact with the OS using their eyes, hands and voice. This should mean that users can interact with digital content as if it is actually present in the real world, according to Apple.

Promotional videos where the wearers’ eyes are visible may make it seem like the Vision Pro uses transparent glass and puts an overlay on it à la the now defunct Google Lens, but that is not the case. The eyes are visible on the outside because there is an external display that puts a live stream of your eyes.

The Vision Pro will use a total of 23 sensors, including 12 cameras, five sensors and six mics, according to TechCrunch. It will use these sensors along with its new R1 chip, two internal displays (one for each eye) and a complex lens system to make the user feel like they are looking at the real world, while in reality, they are essentially getting a “live feed” of their surroundings with an overlay on top.

The R1 chip has been designed to “eliminate lag” and motion sickness, according to Apple. Of course, the device also features the more conventional M2 chip for the rest of the computational processes that will actually drive the apps you use with the device.

Infrared cameras inside the headset will track your eyes so that the device can change the internal display based on how your eye moves, so that it can replicate how the view of your surroundings will change based on the movements.

There are also downward-firing exterior cameras on the headset. These will track your hands so that you can interact with visionOS using gestures. There are also LIDAR sensors on the outside that will track the positions of objects around the Vision Pro in real-time.

What’s the science behind the Vision Pro?

We live in a three-dimensional world and we see it in 3D, but did you know that our eyes can only sense things in two dimensions? The depth that we perceive is just something that our brains have learnt to do. It takes two slightly different images from each eyes and does its own processing to introduce what we perceive as depth.

Presumably, the two displays in the Vision Pro will take advantage of this processing done by our brain by displaying two slightly different images, tricking our brain into thinking that it is seeing a 3D dimensional image. Once you trick the brain, you have tricked the person, and voila, the user is now seeing in 3D.

<https://indianexpress.com/article/technology/science/apple-vision-pro-mixed-reality-headset-how-it-works-8647757/>

