

समाचार पत्रों से चयित अंश Newspapers Clippings

दैनिक सामयिक अभिज्ञता सेवा
A Daily Current Awareness Service

Vol. 45 No. 43 28 February 2020



रक्षा विज्ञान पुस्तकालय
Defence Science Library
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Air Chief Marshal Bhadauria interview: 'We will expand operational utility of Tejas'

The Indian Air Force (IAF) is observing the first anniversary of Balakot air strikes that were targeted at terror camps in Pakistan on February 26, 2019.

To mark the significance of one of the most complex operations in modern warfare executed with military precision and punch, Air Chief Marshal R K S Bhadauria flew a five aircraft mission from Srinagar Air Base on Wednesday.

Flying alongside the Chief of Air Staff's MiG-21 Type 69 was two Mirage-2000s and two Sukhoi-30 MKIs – the aircrew from squadrons that had participated in the operations on February 26, 27 last year.

At the helm of IAF affairs since October 2019, Air Chief Marshal Bhadauria is widely seen as a man backing home-grown efforts in aerospace and defence sector.

In the last five months, as the Chief of Air Staff, Air Chief Marshal Bhadauria has initiated several steps to enhance the combat capabilities of the IAF.

Areas such as sensor/weapons technology, network/data management, artificial intelligence, operational/maintenance practices and training/supporting of human resources have got a fresh impetus so as to prepare the air warriors for the challenges of the 21st century.

In an interview to Onmanorama, Air Chief Marshal Bhadauria says that these are interesting times for the IAF.

“The very nature of warfare is changing rapidly,” he says

Excerpts from the interview:

Squadron strength

The reducing strength of IAF combat assets is no secret. We have not been sitting idle in the interim, however. We have mitigated the numbers by improving serviceability and enhancing weapons suite.

We are ensuring timely upgrades of legacy platforms and working on new inductions to increase the numbers. The planned induction of the LCA versions and the acquisition of MRFA (Multi-Role Fighter Aircraft) will halt this trend and result in an increase in the desired numbers in a short to medium timeframe.

The induction of LCA MKII will enhance the squadron numbers. The development of indigenous fifth generation aircraft technologies for AMCA (Advanced Medium Combat Aircraft) is part of our long term plans.

It is important that the development and deliveries are as per the planned induction schedules if we are to build the numbers and capability in reasonable time frame.

IAF in 10 years

These are interesting times for the IAF. The very nature of warfare is changing rapidly, and we now have to be simultaneously effective across multiple domains and levels of warfare extending from conventional to countering sub conventional threats.

We have to not only embrace emerging fifth generation technologies/ capabilities but master the emergent technologies in cyber, networking and big data to be always ahead of our adversaries in capability and thought process.

The IAF in 10 years hence will be different. Today, we are laying a robust foundation for the IAF to be a relevant and effective force for the threat perception of the future.

We have a clear roadmap. The planning process is already underway for combat systems like optimally manned sixth generation technologies, smart wingman concept, swarm drones, long persistent HALE (High Altitude Long Endurance) platforms, hypersonic weapons among others.

On 83 Tejas MKIA deal

There were no plans to sign the deal during DefExpo 2020. This appears to have featured only in the media in the run up to the show. The process is underway and I see no major impediments. We should see the contract being closed within this financial year.

On LCA MKII & AMCA

My directions to the IAF programme management teams (PMT) at Aeronautical Development Agency are clear and they are to involve completely in the design and development process of the projects LCA MKII & AMCA.

The IAF has been completely involved in the Tejas Mk1 and the Mk1A both in terms of placing orders and providing domain expertise. As customers we are fully committed to the success of the indigenous fighter programmes.

2nd Tejas Sqn at Sulur

The first squadron (No 45 Sqn, Flying Daggers) is continuing to evolve the operational philosophy and validate the combat roles of the Tejas in IAF service. With the induction of the second squadron, we will enhance the operational utilisation of the Tejas.

The Tejas has very good capabilities and as we gain experience we will continue to expand its operational utility in IAF plans.

On desi missions

The IAF has firmly backed the indigenous efforts of our industry and we have reposed faith in them. Now it is time for the public sector to step up and deliver. The rate of production definitely needs to be enhanced and measures will have to be taken to ensure quality is maintained and effective maintenance support is provided to support our forces in the field.

Private sector

The private sector also needs to move beyond discussions and expressions of interest, and firmly invest in providing the necessary platforms and systems to enable us to completely switch to indigenous equipment.

Here, I would like to mention that we also need to think beyond just import substitution but also incubate high technologies and innovations, and indeed become world leaders in this aspect.

On Gaganyaan

The IAF has been closely working with ISRO since the MoU signing in May 2019 on crew selection and training for Mission Gaganyaan. We have selected the pilots for the mission after a comprehensive and rigorous process. They have commenced their training at Russia with our Russian partners.

The IAF has been involved in the training process both on the operational and aero-medical fronts and we are working in close coordination with ISRO. The IAF specialist wings at Bengaluru -- the Aircraft Systems and Training Establishment (ASTE) and the Institute of Aerospace Medicine (IAM) - continue to work closely with ISRO on relevant design and testing aspects.

The Rafale edge

The Rafale will be a game changer in many ways. With its India-specific enhancements in avionics, electronic warfare and weapons suite, radar, HMD (helmet-mounted display) and the ability to operate from high altitude airfields, the Rafale will be one of the most contemporary and potent platforms in the region.

It will give us the first shot advantage in the aerial battle and provide us greater reach and punch, enhancing our ability to strike hard and deep and control the air battle in the subcontinent.

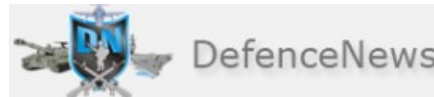
We are working proactively to integrate it fully with our existing assets in order to operationalise this capability quickly when the aircraft arrives.

Takeaways from DefExpo

The number of Indian exhibitors both from the public and private sector at Def Expo2020 has shown that the focus is shifting steadily towards indigenization and Make in India in the defence sector.

I have had many fruitful interactive sessions with delegations from overseas. Apart from showcasing the indigenous defence industry projects, we have identified many avenues of cooperation, especially in training, joint exercises and HADR (Humanitarian Assistance and Disaster Relief) operations.

<https://www.defencenews.in/article/Air-Chief-Marshal-Bhadauria-interview-We-will-expand-operational-utility-of-Tejas-809461>



Fri, 28 Feb 2020

DRDO decay part 1: Keeping end users in dark, poor planning, flouting of SOPs hurt UAV projects, reveals CAG test audit

More than a decade ago P Rama Rao Committee in a report to the then defence minister AK Antony in 2008 had asked for a complete overhaul of Defence Research and Development Organisation (DRDO), the country's premier research and development agency for the armed forces. Since then, the debate within the armed forces community has been centred on whether the DRDO which has an annual budget running into thousands of crores disappointed the forces or it was able to meet their expectations.

It is in the national interest to empower the DRDO, make it more efficient with indigenous technology. However, year after year, the criticism of DRDO for not meeting the requirement of the armed forces continues to grow. The tales of DRDO's successes have been lauded by the government in the past but the inefficiency, which has far-reaching consequences for national security, is too glaring to be ignored.

A test audit report by the Comptroller and Auditor General (CAG) examining the working of Aeronautical Development Establishment (ADE) reveals that the lab is taking up projects aimlessly without any focus and priority, spending money on research which has been abandoned without completion and even projects which are said to be completed have no takers within the armed forces community.

The report unearths dismal performance pointing out that out of the 10 completed projects in 10 years, only two projects were able to achieve the objectives. The mission of ADE is to develop and lead to the production of Unmanned Aerial Vehicles (UAVs) and aeronautical systems to meet the needs of the services and progressively enhance the technological infrastructure and capabilities. However, the audit report claimed that ADE is unable to meet its mission objective.

The report reviewed by Firstpost is scathing on ADE's floating ventures. It said: "ADE undertook its projects without adhering to the provisions of Procedures for Project Formulation and Management (PPFM), both during planning as well as execution stage. Non-adherence to provisions of PPFM

resulted in project deliverables for which no users could be identified and resultantly, the products developed could not be productionised and used by the services.”

The audit pointed out another interesting fact that except for pilotless target aircraft named Lakshya designed and developed by ADE way back in the 1990s, no other ADE product has been inducted into the armed forces.

“This indicated that R&D effort at ADE was not fructifying into usable products for armed forces,” the report observed.

A DRDO spokesperson did not comment on the findings of the test audit report. However, he said ADE is the centre of excellence for the flight control system of manned and unmanned aircraft in India. “ADE has developed Full Mission Simulator for LCA which is installed at ADE and is also upcoming at IAF squadrons. ADE has developed and delivered Computerised Pilot Selection System (CPSS) in 2014 which is commissioned at three air force stations with 20 psychomotor and 100 cognitive terminals at each air force station for the pilot selection process of IAF,” the DRDO spokesperson said.

An email questionnaire sent to the Director, ADE, seeking response on the audit findings remained unanswered till the filing of this report.

Distressing details

The projects undertaken by the ADE from 2007 to 2017 (10 years) were selected for review under the test audit of CAG. As per PPFM, which outlines procedures and formats for preparing project proposals, peer review and project closure etc., 16 projects costing about Rs 2,306 crore were undertaken in different categories.

There are broadly five categories -- Mission Mode (MM), Technology Demonstration (TD), Science & Technology (S&T), Product Support (PS) and Infrastructure & facilities. The audit in its findings has unearthed non-compliance at the pre-project stage and slammed ADE for the lackadaisical approach.

It said that the projects were initiated without adequate caution and groundwork, which resulted in either product developed by ADE not meeting the user requirement or no user service showing interest in these products. There is also an observation about non-compliance in preparing feasibility report and the audit said that out of 16 projects examined, no feasibility report was prepared with respect to nine projects. Moreover, the ADE has been criticised for not having user agency (armed forces or paramilitary) on peer review committee board which is required under PPFM to discuss existing systems in use with them and elsewhere in the world and other details about the operation, maintenance and use of the product.

“Involving users in project progress reviews help into cutting short the delays and to know their views in advance and also to keep continuous visibility of the project. Audit found that out of the 16 projects examined, there was no user representation in the project monitoring in 13 projects,” the report said.

Another issue that has been highlighted is the lack of outcome realisation plan, which is primarily to ensure that stages of the project are managed in a satisfactory manner. The utilisation of the project’s outputs are linked to the planned project outcomes and success of the project’s output are assessed and corrective action are taken.

The audit found that out of the 16 projects examined, outcome realisation plan was not prepared in respect of 11 projects. Then there is the issue of time overrun as well as cost overrun. The report said at least 10 projects out of 16 were delayed for a period ranging from six months to six years. The audit found that the cost in respect of three projects was revised upwards ranging from Rs 40 lakh to Rs 369 crore.

“Two projects are still ongoing and further increase in cost cannot be ruled out,” the audit findings revealed.

Another shocking fact in the audit findings is about the procurement of Rs 4.34 crore worth equipment that was received by the ADE after the closure of four projects and remained unitized for the intended purpose for which they were procured.

Negligible success rate of projects

The audit revealed that objectives were achieved only in two out of 10 completed projects. All types of DRDO projects are taken up for execution by the lab after being sanctioned by the competent financial authority. The sanction clearly mentions about the objectives of the project which subsequently becomes the benchmark to assess the success of the project. ADE completed 10 projects out of 16 projects it undertook in 10 years (2007-2017).

“Success rate in achieving the objectives of the project was only 20 percent as ADE could achieve the project objectives in only two out of 10 completed projects and eight projects were closed without achieving objectives,” the audit said.

While decoding the reasons for such a high failure rate, the audit said, the main reason was non-involvement of user representatives in neither in the pre-project work nor during project execution.

“As a result, when the project was developed, either there were no takers or the deliverable did not meet the requirements of the services. In respect of one project even though user representative was involved in the development activities, the product could not be successfully developed by ADE to match the user requirement,” the audit disclosed in the report.

The report further observed that there were instances of projects being short-closed without realising objectives, project deliverable not finding any users, inordinate delays in execution of projects and project goals being changed midway.

<https://www.defencenews.in/article/DRDO-Decay-Part-1-Keeping-end-users-in-dark,-poor-planning,-flouting-of-SOPs-hurt-UAV-projects,-reveals-CAG-test-audit-809453>



Fri, 28 Feb 2020

Defence exports at Rs 35k crore by 2024: Rajnath Singh

Says based on HAL's strength, India will become a defence exporter in coming days

Bengaluru: Defence Minister Rajnath Singh on Thursday projected that the annual Indian defence exports will touch Rs 35,000 crore by 2024 from the current level of Rs 17,000 crore, looking at the capacity of HAL. He was addressing employees and officials of Hindustan Aeronautics Limited (HAL) at their Kannada Naada Habba celebrations here.

Singh said that India will be a (defence) exporter country one day, based on HAL's strength, as in the long run it cannot depend on imports. He said, today with private defence industry as competitors, defence public sector units like HAL have to partake in competitive bidding. This is a new situation and this environment has to be seen as an opportunity, he added.

He hoped the defence public sector units would take the lead in manufacturing civil aircraft in the country. “HAL will play an important role in Make In India programme -- it has excelled in operations and operational finance,” he said, Until March 2019, the company's turnover has been Rs 19,705 crore and it has given the shareholders a healthy dividend of 198 per cent.

<https://www.newindianexpress.com/nation/2020/feb/28/defence-exports-at-rs-35k-crore-by-2024-rajnath-singh-2109627.html>

रक्षा निर्यात 2024 तक बढ़कर 35 हजार करोड़ होगा : राजनाथ

बेंगलुरु: रक्षा मंत्री राजनाथ सिंह ने भारत सरकार की मेक इन इंडिया नीति की सफलता को इंगित करते हुए कहा कि भारत का मौजूदा सालाना रक्षा निर्यात 17,000 करोड़ रुपये से बढ़कर वर्ष 2024 तक 35,000 करोड़ रुपये हो जाएगा। यानी अगले चार साल में यह बढ़त दोगुनी से भी अधिक होगी।

रक्षा मंत्री ने गुरुवार को कर्नाटक के राज्योत्सव कार्यक्रम में बताया कि उन्हें इस बात में कोई संदेह नहीं है कि भारत वर्ष 2030 तक विश्व में तीन प्रमुख अर्थव्यवस्थाओं में शुमार होगा और इसमें रक्षा क्षेत्र के उद्योग की अहम भूमिका होगी। इस बात का उन्हें पूरा विश्वास है। उन्होंने कहा, 'भारत का रक्षा निर्यात बढ़ रहा है। पिछले दो सालों में हमारा निर्यात बढ़कर 17,000 करोड़ रुपये हो गया है। लेकिन एचएएल (हॉल्डिंग्स एयरोनॉटिक्स लिमिटेड) की क्षमताओं को देखते हुए कहा जा सकता है कि आने वाले सालों में यानी वर्ष 2024 तक यह निर्यात 35,000 करोड़ रुपये का हो जाएगा।'

राजनाथ सिंह ने कार्यक्रम में मौजूद लोगों से कहा कि भारत केवल आयात पर लंबे समय तक निर्भर नहीं रह सकता है। इसलिए भारतीय कंपनियों, विशेषकर रक्षा क्षेत्र में सार्वजनिक क्षेत्र की इकाइयों को प्रधानमंत्री नरेंद्र मोदी के 'मेक इन इंडिया' के लक्ष्य को हासिल करने में अहम भूमिका निभानी है। हम भारत को आयातक देश के रूप में नहीं देखना चाहते। इसलिए क्षमताओं को देखते हुए हम कह सकते हैं कि भारत निश्चित रूप से एक निर्यातक देश बनेगा। अब उसे कोई नहीं रोक सकता।

उन्होंने सार्वजनिक क्षेत्र की इकाई के तौर पर एचएएल की तारीफ करते हुए कहा कि उसका प्रदर्शन ऑपरेशंस और फाइनेंस दोनों में ही अच्छा रहा है। मार्च, 2019 तक इस कंपनी का टर्नओवर 19,705 करोड़ रुपये था और एचएएल ने अपने शेयरधारकों को 198 फीसद के डिविडेंट दिए। उन्होंने बताया कि इस दौरान कंपनी ने एलसीए (तेजस) और हल्के युद्धक हेलीकॉप्टर (एलसीएच) समेत सात विभिन्न मंचों पर अभियान संबंधी मंजूरी हासिल कर ली है। हॉक और एसयू-30 को लेकर भी अच्छा काम किया गया है।

रक्षा मंत्री राजनाथ सिंह ने गुरुवार को बेंगलुरु में स्थित एचएएल कॉम्प्लेक्स में हल्के लड़ाकू हेलीकॉप्टर के फाइनल असेंबली हैंगर का उद्घाटन किया 'एएनआइ

मेक इन इंडिया

- रक्षा मंत्री बोले- तीसरी प्रमुख अर्थव्यवस्था बनने में रक्षा क्षेत्र उद्योग की अहम भूमिका होगी
- कहा-भारत निश्चित रूप से एक निर्यातक देश बनेगा, अब उसे कोई नहीं रोक सकता

<https://epaper.jagran.com/epaper/28-feb-2020-4-delhi-city-edition-delhi-city-page-13.html#>

तटीय सुरक्षा मजबूत करने के लिए गश्ती पोत 'वज्र' का जलावतरण

चेन्नई: तटीय सुरक्षा को और मजबूत बनाने के लिए गश्ती पोत "याई 45006 वज्र" को पोत परिवहन मंत्री मनसुख मांडविया और वरिष्ठ सरकारी अधिकारियों की मौजूदगी में बृहस्पतिवार को औपचारिक रूप से सेवा में शामिल कर लिया गया। मांडविया ने कहा कि 'मेक इन इंडिया' अभियान के तहत लार्सन एंड टुब्रो द्वारा निर्मित पोत का इस्तेमाल दिन और रात की गश्ती के लिए होगा। केंद्रीय मंत्री की पत्नी गीता मांडविया ने यहां कट्टूपल्ली बंदरगाह पर पोत का जलावतरण किया। तटरक्षक के निदेशक जनरल के. नटराजन और वरिष्ठ सरकारी अधिकारी भी इस दौरान मौजूद थे। मंत्री ने कहा, "तटीय सुरक्षा को और मजबूत करने की प्रतिबद्धता के तहत कट्टूपल्ली में लार्सन एंड टुब्रो शिपबिल्डिंग लिमिटेड में छठे गश्ती पोत वज्र का जलावतरण किया गया।" उन्होंने कहा कि यह उन्नत किस्म की नौवहन और संचार प्रणाली से लैस है। इसके साथ ही इसमें नयी मशीनरी और उपकरणों का इस्तेमाल हुआ है। ऐसे में इससे लगातार निगरानी की जा सकेगी। तटरक्षक के मुताबिक, केंद्र के 'मेक इन इंडिया' के अभियान के तहत लार्सन एंड टुब्रो द्वारा निर्माण किए जाने वाले सात पोत की श्रृंखला में 'याई 45006' छठा पोत है।

<https://navbharattimes.indiatimes.com/state/other-states/bangalore/chennai/launch-of-patrol-vessel-vajra-to-strengthen-coastal-security/articleshow/74337767.cms>



Fri, 28 Feb 2020

L&T delivers second offshore petrol vessel ICGS Vijaya to Coast Guard

L&T Shipbuilding, today handed over offshore patrol vessel, ICGS Vijaya (OPV-2), the second of seven offshore petrol vessel being built at L&T's shipyard in Tamil Nadu to the Indian Coast Guard.

The 2,160-ton vessel, designed and constructed by L&T under a March 2015 ministry of defence contract, was delivered ahead of schedule, the company stated.

The first vessel of the series ICGS Vikram was handed over as a curtain raiser for DEFEXPO-2018.

The delivery of ICGS Vijaya comes close on the heels of the launch of OPV-3 on 28 August at the L&T Kattupalli shipyard. The work is simultaneously in progress on the OPVs 4, 5 & 6 that are at different stages of completion L&T said.

So far, 40 interceptor boats have been delivered out of the series of 54 boats designed and built for the Coast Guard while the remaining 14 are also ready for delivery, with the programme being about two years ahead of schedule. The Floating Dock FDN-2 for the Navy, designed and built for the first time in India, was delivered in March 2018 and is fully operational at Andaman & Nicobar Islands.

Commenting on the occasion, SN Subrahmanyam, MD & CEO of Larsen & Toubro, said: "Delivery of ICGS Vijaya ahead of contractual schedule reinforces our impeccable record of accomplishments in

defence shipbuilding. Going forward, with commitment, huge infrastructure and talent pool in place, L&T aims to contribute significantly towards making Indian Coast Guard and Naval Fleet self-reliant.”

Jayant D Patil, whole-time director (defence) and member of L&T board, said: “Delivery of ships continuously ahead of schedule has won the confidence of our esteemed customers. L&T has pioneered in developing indigenous defence technology for the Indian Armed Forces for the past three decades. With a wide range of defence solutions on offer, L&T is diligently working to realize ‘Make in India’ in defence through a series of success stories across defence domains.”

Vice Admiral B Kannan (Retd.), MD & CEO L&T Shipbuilding, said: “Early delivery of ICGS Vijaya is yet another testimony of L&T’s focused efforts on innovation, quality and speed of execution. Modern shipyard facilities and layout that enhances efficiency, in-house design, modular construction, high level of pre-outfitting, and innovative digital solutions have enabled L&T to achieve this new standard amongst Indian Shipyards. We are proud of attaining yet another benchmark in Indian shipbuilding by accomplishing better than design performance for both ICGS Vikram and ICGS Vijaya established in just two sea sorties.”

<https://www.defencenews.in/article/LandT-delivers-second-offshore-petrol-vessel-ICGS-Vijaya-to-Coast-Guard-809458>

THE ASIAN AGE

Fri, 28 Feb 2020

MH-60 helicopters to arrive in 2021

Deal to buy 24 helicopters was signed during Trump’s visit

By Pawan Bali

New Delhi: The Indian Navy on Thursday said that the delivery of 24 American multi-role MH-60 ‘Romeo’ helicopters will start from early 2021 and it will play an important role in maritime security at a time when the Indian Ocean Region is witnessing increasing security threat due to proliferation of submarines.

India had signed the \$2.4 billion deal to buy these 24 helicopters during the visit of US President Donald Trump on Tuesday.

“These helicopters are a replacement for the Sea King 42/42A helicopters already decommissioned in the 1990s and envisaged to operate from front-line ships and aircraft carriers providing them the critical attributes of flexibility of operation, enhanced surveillance and attacking capability,” said the Indian Navy in a statement.

It said that MH-60 ‘Romeo’ Seahawk helicopters can be effectively employed for offensive and defensive roles including anti-submarine warfare, anti-ship strike, low intensity maritime operations, search and rescue, over the horizon network centric operations and electronic warfare.

“The helicopter’s capability of prolonged maritime operations and seamless integration with the P8i and ships at sea makes it a ‘force multiplier,’” said the Indian Navy.

It said that as part of the Indian Navy’s commitment to the ‘Make in India’ initiative, Lockheed Martin would also be discharging offsets through transfer of technology to Indian offset partners for manufacture of products and services. “This would enable absorption of niche technology, skill development and manufacture of eligible products/services leading to generation of employment, skilling of MSMEs and indigenous production of products for buy-back by the OEM,” it said.



The MH - 60R Multi Role Helicopters (MRH) are being procured under the 'Buy (Global)' Category through Foreign Military Sales.

"The acquisition of MH-60R provides Indian Navy with a key capability and effectively contributes to the Make in India initiative," said Indian Navy.

<https://www.asianage.com/india/all-india/280220/mh-60-helicopters-to-arrive-in-2021.html>



Fri, 28 Feb 2020

What should India's joint command structure look like?

The Chief of Defence Staff must spell out India's strategic interests as part of a vision document

By Atul Aneja

The massive restructuring of the military command structure has dismantled the old civil-military relationship, with far greater powers in decision-making now being bestowed on the armed forces. Madanjit Singh and Anit Mukherjee discuss this complex transformation in a conversation moderated by Atul Aneja. Edited excerpts:

Admiral Singh, following the Kargil War of 1999, the imperative to create a Chief of Defence Staff (CDS) assumed great importance. What were the takeaways of the debate back then on tri-service integration and how much do you think it influenced the current appointment of the CDS, the decision to set up theatre commands, backed by the formation of the Department of Military Affairs (DMA)?

Madanjit Singh: After the Kargil War, a decision was taken to overhaul the higher defence organisation as several weaknesses were detected, especially in the conduct of joint operations by the three services. Many senior officers from the services headquarters and the government spent several months in compiling the report. Besides, we reviewed procurement and indigenous production, the Defence Research and Development Organisation, manpower issues, etc. We were very conscious that military and civilian organisations have a strong sense of history and a deep cultural ethos. In a nutshell, they are extremely reluctant to change.

As I understand, there was a comprehensive review of the entire command structure after the Kargil War, which was followed by specific proposals for reforms in view of the Revolution in Military Affairs, which also demanded doctrinal changes. A nuclear dimension had also come into the equation, following the 1998 nuclear tests, the 'no first use' doctrine, and the need for a second strike capability through a nuclear triad. Could you weigh in on the nuclear dimension, and its broader implications on command and control?

Madanjit Singh: Yes, the task force did that [discuss the nuclear dimension]. We were of the view that we should keep the strategic assets separate from the conventional assets. We also discussed who should be on board the Nuclear Command Authority. We laid down the concept for that. We also proposed the formation of a Department of Defence Services. We did not call it DMA. We recommended that it should be headed by the Vice Chief of Defence Staff and not the CDS. We also deliberated on the theatre command concept but had recommended formation of regional commands.

It has been quite some time since the post-Kargil recommendations came. But real action is taking place now, with the appointment of the CDS, a decision in principle to form theatre commands, along with the DMA machinery. How do you explain the timing?

Anit Mukherjee: I do not think anybody knows why they created the CDS now. It's all conjecture that the Doklam crisis with China and the Balakot air strikes in Pakistan were the trigger points. Or

perhaps it was a call by the Prime Minister — that these issues were festering for too long and something decisive had to be done.

Madanjit Singh: I think the decision was more financially driven. You have all heard: in the services we don't get enough money. The Navy had a wishlist of 200 ships, the Air Force targeted 45 squadrons. It made some people sit up and consider that with the change in the nature of warfare and limited resources, we needed to look afresh, pool and share costly assets, bring down the costs, but also sharpen the combat edge through streamlined tri-service operations.

Anit Mukherjee: But perhaps there were other issues brewing beneath the surface as well. For instance, the patchy experience with the tri-service Andaman and Nicobar Command, the first tri-service command, set up in 2001 to focus on India's interests in southeast Asia and the Strait of Malacca. This joint command was not allowed to succeed because the three services did not want to share their assets, and did not post their best officers on it. So, with this negative experience in the background, the current leadership may have gone all out and appointed a powerful CDS capable of sweeping aside resistance from individual services. So, I want to give full credit to this government for creating an empowered office of the CDS.

While the CDS heads the DMA, is the Principal Adviser to the Defence Minister and the Military Adviser to the strategic nuclear forces, he is not — at least not yet — an operational head of the tri-service theatre commands unlike, say, the Chairman Joint Chiefs of Staff Committee in the United States. Do you think this can cause problems in command and control?

Madanjit Singh: That's a moot point, that is about the apex body... should we follow the U.S. style of Joint Chiefs of Staff model, or what other countries such as Germany follow. I think we need to clearly think this through, perhaps by appointing a dedicated task force in which the three services are involved, with a six-month time frame to define the concept, which addresses command and control aspects, which cover theatre commands and the assets they command, within the framework of our limited resources.

Do you think this theatre commands framework is something which is desirable for India, given its present and future interests? Is this the right approach structurally, to create theatre commands; dedicated tri-service commands that are to be deployed along the northern border with China, the western border with Pakistan, an air defence command, and in the maritime domain, a peninsular command. Do you think we are pursuing the right model here?

Madanjit Singh: I think before we start moving concretely in this direction, we need a clear, realistic vision document about what our strategic interests are, and flowing from that, specific roles that the theatre commands need to be perform.

Anit Mukherjee: It is very important that within the next six to eight months the CDS should come up with a vision document explaining his plan. Regarding the relevance of theatre commands, if you ask me personally, I think theatre command is something that we required day before yesterday. In the absence of theatre, you will have a duplication of functions, duplication of roles. But alongside we need to ask tougher questions of all three services as well. To the Army we need to ask: how can you go in for modernisation and increasing or maintaining manpower at the same time? To the Navy: do you really need three aircraft carriers? So, I think these are the debates that need to be had for the future of India, for the future of Indian taxpayers.

Madanjit Singh: Theatre commands work best when you have dedicated assets. The main point is, how do you allocate the resources, the permanent resources that need to be allocated, to a theatre command? The Andaman and Nicobar Command did not take off precisely because nobody allocated resources. I also wish to make one more point specific to the Navy. Given the vast maritime frontiers, the formation of one peninsular command, as recommended, is simply not good enough. If you look at the vastness of the Indian Ocean... now we are also looking at Asia-Pacific, we have got the Quad with the U.S., Japan and Australia on the radar. We need to get rid of this prolonged 'sea blindness' so to speak.

Is the three-year time line for rolling out theatre commands as indicated by the CDS, General Bipin Rawat, realistic? Are we creating artificial time lines here?

Anit Mukherjee: I would say three years is good enough. Because I do not think the same impetus and urgency will be there if the bureaucracy is given as much time as they want. They will keep prolonging it, and avoid difficult conversations. Of course, in the process there will be institutional winners... it won't be painless. But I don't think it ought to be kicked even further down the road.

In the formation of the DMA, which is a key pillar of the ongoing military reforms, the uniformed personnel for the first time appear to be in the cockpit of decision-making. Have we got the balance right here, in terms of decision-making between the civilian bureaucracy and the armed forces?

Anit Mukherjee: I have not seen this model discussed previously. It was not a part of the Committee on Defence Expenditure, not a part of the Kargil Review Committee, and not a part of the Naresh Chandra Committee. As a scholar, I have studied institutions and systems, but I cannot think of any other country with a similar system. I'm a little sceptical. But perhaps this is what you get when the civilian bureaucracy has been dragging its feet on developing a more rational model of civil-military relations. And I think after a while, perhaps somebody lost that patience with the civilian bureaucracy and went ahead with the current model.

But we have to ask a deeper question here. Under the DMA, the military has been asked to perform complex administrative roles, but I think professional military education within the armed forces is still geared far too much towards operation and training and not enough towards education. So, it is important to encourage your officers to get a wide education and not just go to the Army War College, Naval War College, Air War College, which all create their own echo chambers because exposure to the civilian stream is minimum. When I look at the U.S., at European countries, education means awareness of the wider society. So, I have been advocating for a long time the setting up of the Indian version of the National Defence University.

The National Defence University should not be the exclusive preserve of the armed forces, because the armed forces are not experts on higher education. We need to have a greater discussion among civilian policymakers, academics, military officers to think about what sort of education we are going to give to officers to equip them to perform complex inter-agency roles as demanded by institutions such as the DMA.

(Anit Mukherjee is a former Army officer and Assistant Professor at the Rajaratnam School of International Studies at the Nanyang Technological University in Singapore; Madanjit Singh is Vice Admiral (retd.), former head of the Western Naval Command and member of the task force for the review of the management of defence, set up after the 1999 Kargil War)

<https://www.thehindu.com/opinion/op-ed/what-should-indias-joint-command-structure-look-like/article30934894.ece>



Fri, 28 Feb 2020

UN disarmament Chief: Nuclear arms race is threatening world

United Nations — The U.N. disarmament chief warned Wednesday that the specter of an unbridled nuclear arms race is threatening the world for the first time since the 1970s, the height of the Cold War between the United States and the former Soviet Union.

Izumi Nakamitsu didn't name any countries but she was clearly referring to the United States and Russia, and possibly China, when she told the U.N. Security Council that "relationships between states — especially nuclear-weapon states — are fractured."

"So-called great power competition is the order of the day," Nakamitsu said. "Division, distrust and a dearth of dialogue are increasingly the norm."

Russia-U.S. relations have been at post-Cold War lows since Moscow's 2014 annexation of Ukraine's Crimea.

Last year, Russia and the U.S. both withdrew from the 1987 Intermediate-range Nuclear Forces Treaty, the U.S. saying it pulled out because of Russian violations and the Kremlin denying breaching the treaty's terms. Russia has said the U.S. also appears reluctant to extend the New START treaty, the only treaty governing the number of strategic nuclear weapons deployed by the two countries, which expires in 2021.

Last week, U.S. Defense Secretary Mark Esper touted a multibillion-dollar plan for a top-to-bottom modernization of America's nuclear arsenal to keep up with Russia and outpace China. In late December, Russia's defense minister reported to President Vladimir Putin that a new intercontinental weapon that can fly 27 times the speed of sound had become operational, bolstering the country's nuclear strike capability.

Nakamitsu warned that "the specter of unconstrained nuclear competition looms over us for the first time since the 1970s."

"We are witnessing what has been termed a qualitative nuclear arms race — one not based on numbers but on faster, stealthier and more accurate weapons," she said. "Regional conflicts with a nuclear dimension are worsening, and proliferation challenges are not receding."

The Security Council meeting was requested by Germany to commemorate the 50th anniversary of the Nuclear Nonproliferation Treaty on March 5 and to support the upcoming conference to review and advance its goals which starts April 27 and ends May 22.

Russia and the United States clashed at the meeting over the breakdown in arms control negotiations.

But they supported a statement by the 15-member Security Council saying the treaty, known as the NPT, "remains the cornerstone of the nuclear nonproliferation regime and the foundation for the pursuit of nuclear disarmament and the peaceful uses of nuclear energy."

The council resolved to advance the NPT's goals and underlined the treaty's essential role "in the preservation of international peace, security and stability as well as the ultimate objective of a world without nuclear weapons."

Germany's Foreign Minister Heiko Maas told the council that despite its achievements "the NPT is facing serious setbacks: Nuclear disarmament has come to a standstill. New technologies are creating dangerous strategic imbalances. And proliferation crises are demanding our fullest attention."

He pointed to North Korea acquiring nuclear weapons, disregarding the NPT and Security Council resolutions, as a key failure.

Maas said the only realistic way ahead is applying pressure and stepping up nuclear diplomacy.

He urged international support for U.S. efforts to negotiate with North Korea, and for the 2015 Iran nuclear deal which "remains the best and only promising tool to keep Iran from obtaining nuclear weapons."

Russia's U.N. Ambassador Vassily Nebenzia blamed the breakdown of nuclear and arms control agreements on "attempts by one state to dominate the world and to impose on the international community its rules at the expense of the interests of other states and of international law" — a clear reference to the United States.

He said the U.S. has ignored a Russian proposal to impose a moratorium on medium- and short-range ballistic missile systems. And he said Putin is still waiting for an answer to his proposal to extend the New Start treaty “without any preconditions.”

Nebenzia also accused the Trump administration of “lowering the threshold for the possible use of nuclear weapons” and accused NATO countries of practicing “joint nuclear missions, which include elements of nuclear planning.”

Acting U.S. deputy ambassador Cherith Norman Chalet said that advancing to a world without nuclear weapons “must take into account the global security environment.”

“We cannot overlook the actions of those states that are expanding and modernizing their nuclear stockpiles, as well as developing exotic delivery systems, threatening their neighbors, and violating their arms control agreements,” she said in a clear reference to Russia and China.

Looking ahead to the NPT review conference, Chalet said the United States seeks “a positive outcome that reflects consensus on as broad a basis as possible” and avoid divisive positions.

“States must also be united in the goal of the final, fully verified denuclearization of North Korea” and remain committed “to a secure, peaceful, and bright future for North Korea if it fulfills its obligations,” she said. “And we must remain united in our determination that Iran never acquire a path to nuclear weapons.”

Russia’s Nebenzia said it’s important for nuclear and non-nuclear states to join efforts “to ease tensions and confrontation.”

“It’s important that the review conference of 2020 contribute to strengthening the nonproliferation regime rather than weakening it,” he said, “In other words, be as non-confrontational as possible.”

MailOnline

Fri, 28 Feb 2020

Ancient meteorite site in Germany with similar geology and chemistry to Mars could shed light on how the red planet may once have sustained life

By Jonathan Chadwick

- *Nordlinger Ries crater in Germany can help disclose the history of Martian life*
- *It could help reveal alkalinity, pH and nitrogen content of ancient Martian waters*
- *The 15-mile-wide crater formed 15 million years ago is similar to craters on Mars*

An ancient meteor site in Germany is being studied to help scientists develop a better understanding of how past life could have existed on Mars.

An international research team analysed samples from Nordlinger Ries, a 15-mile-wide impact crater in southern Germany.

The site’s geology and chemistry bear similarities to the Martian surface – in particular the Jezero crater north of the Martian equator.

Both Jezero and Nordlinger Ries featured liquid water in their distant past, making their chemical compositions comparable.

The Ries crater – in which a whole city was built more than 1,000 years ago – has layers of rock and minerals better preserved than almost anywhere on Earth.

Specifically, nitrogen isotopes in rock samples from the Ries crater are estimating the pH of ancient waters on Mars. The Mars 2020 rover will land in a similarly structured and well-preserved ancient crater on Mars next year, called the Jezero crater.

Comparisons between the two will help scientists gain an understanding of how Mars once hosted oceans and life billions of years ago.

‘The question that drives our interests isn't whether there's life on present-day Mars,’ said Professor Timothy Lyons at the Department of Earth Sciences at the University of California, Riverside.

‘We are driven instead by asking whether there was life on Mars billions of years ago, which seems significantly more likely.’

Mars is currently too cold – minus 81 degrees Fahrenheit – to support life as we know it.

NASA research already shows that Mars had a liquid water ocean around 4 billion years ago, but how that was possible is not completely certain.

Mars is further from the Sun than Earth is, and billions of years ago the Sun generated less heat than it does today.

To have made the planet warm enough for liquid surface water, its atmosphere would likely have needed an immense amount of greenhouse gas, carbon dioxide specifically,’ said Chris Tino, co-author of the study, which has been published in *Science Advances*.

It’s unlikely that ancient Mars had enough oxygen to have been home to complex life forms such as humans and animals, although microorganisms may have survived in alkaline lakes.

High-pH alkaline lakes are among the most productive ecosystems on Earth and are prime targets in the search for life on Mars.

Alkaline lakes also suggest sufficient carbon dioxide in the atmosphere to warm the planet and make liquid water possible.

The team believe that Nordlinger Ries – which was formed around 15 million years ago after being struck by a meteorite – could help fill in the gaps regarding Mars’ history.

The German crater helps astrobiologists understand the alkalinity, pH and nitrogen content of ancient waters on Mars, which in turn suggests carbon dioxide composition, suggestive of life.

‘Ries crater rock samples have ratios of nitrogen isotopes that can best be explained by high pH,’ said co-author Eva Stüeken at the School of Earth & Environmental Sciences at the University of St. Andrews.

‘What's more, the minerals in the ancient sediments tell us that alkalinity was also very high.’

Martian rock samples with mineral indicators for high alkalinity and nitrogen isotope data pointing to relatively low pH would demand extremely high levels of carbon dioxide in the past atmosphere.

‘High alkalinity and neutral pH is a manifestation of really high CO₂,’ Professor Lyons told MailOnline.

‘One, our method could help confirm how liquid water was possible, a requirement for life, and two, how high pH, high alkalinity waters represent extreme conditions that nonetheless can abound with microbial life.’

The resulting carbon dioxide estimates could help solve the mystery of how an ancient Mars located so far from a faint early sun could have been warm enough for surface oceans and perhaps life.

When samples from NASA's Mars 2020 rover mission are brought back to Earth, they could be analysed for their nitrogen isotope ratios.

This data could confirm the team's suspicion that very high levels of carbon dioxide made liquid water possible and maybe even some forms of microbial life long ago.

‘It could be 10-20 years before samples are brought back to Earth,’ Professor Lyons said.

‘But I am delighted to know that we have perhaps helped to define one of the first questions to ask once these samples are distributed to labs in the US and throughout the world.’

WHAT DO WE KNOW ABOUT NASA'S MARS 2020 ROVER?

NASA'S Mars 2020 rover will search for signs of ancient life on Mars in a bid to help scientists better understand how life evolved on our own planet.

The machine will explore an ancient river delta within the Jezero Crater, which was once filled with a 1,600-foot (500-meter) deep lake.

It is believed that the region hosted microbial life some 3.5 to 3.9 billion years ago.

The \$2.5 billion (£1.95 billion) Mars 2020 is planned to launch in July 2020, and land in February 2021. Mars 2020 is designed to land inside the crater and collect samples that will eventually be returned to Earth for further analysis.

Nasa says a second mission will need to fly to the planet and return the samples, perhaps by the later 2020s.

WHAT IS THE NÖRDLINGEN RIES CRATER?

Nördlingen Ries is an impact crater that formed on Earth about 14.8 million years ago from an asteroid that smashed into the surface of the Earth.

The crater, which is 15 miles in diameter, is most commonly referred to simply as Ries crater or the Ries.

The town of Nördlingen was built inside the crater in the 9th century at the very latest.

The Ries is recognised as an analog for Martian craters.

Ries was a rampart crater, which are almost exclusively found on Mars.

Rampart craters exhibit a 'fluidized ejecta' flow after impact of the meteorite.

<https://www.dailymail.co.uk/sciencetech/article-8047621/Impact-crater-Germany-Mars-hosted-alien-life.html>



Fri, 28 Feb 2020

About the size of a car, Earth captures new 'Mini Moon' in its orbit

Astronomer Kacper Wierzchos said it was a 'big deal' as 'this is just the second asteroid known to orbit Earth (after 2006 RH120, which was also discovered by the Catalina Sky Survey).; Its route suggests it entered Earth's orbit three years ago, he said

Washington: Earth has acquired a second "mini-moon" about the size of a car, according to astronomers who spotted the object circling our planet.

The mass — roughly 1.9-3.5 meters (6-11 feet) in diameter — was observed by researchers Kacper Wierzchos and Teddy Pruyne at the NASA-funded Catalina Sky Survey in Arizona on the night of February 15.

"BIG NEWS. Earth has a new temporarily captured object/Possible mini-moon called 2020 CD3," likely to be a C-type asteroid, Wierzchos tweeted on Wednesday.

The astronomer said it was a "big deal" as "this is just the second asteroid known to orbit Earth (after 2006 RH120, which was also discovered by the Catalina Sky Survey)." Its route suggests it entered Earth's orbit three years ago, he said.

The Smithsonian Astrophysical Observatory's Minor Planet Center, which collects data on minor planets and asteroids, in an announcement said "no link to a known artificial object has been found," implying it was likely an asteroid captured by Earth's gravity.

"Orbit integrations indicate that this object is temporarily bound to the Earth." Tech entrepreneur Elon Musk said the car-sized object was not the Tesla Roadster he launched into space in 2018, which is now orbiting the Sun.

"It's not mine," he tweeted.

Earth's new neighbor is not in a stable orbit around the planet and is unlikely to be around for very long.

"It is heading away from the Earth-moon system as we speak," Grigori Fedorets, research fellow at Queen's University Belfast in Northern Ireland, told New Scientist magazine, and was likely to escape in April.

The only other asteroid known to orbit Earth, 2006 RH120, rotated the planet from September 2006 to June 2007.

<https://www.news18.com/news/world/about-the-size-of-a-car-earth-captures-new-mini-moon-in-its-orbit-2518077.html>