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Indian committee calls for 'complete revamp' of DRDO

By Jon Grevatt

India's Parliamentary Standing Committee on Defence has tabled a series of recommendations to enhance the capabilities of the country's Defence Research and Development Organisation (DRDO).

In a report submitted to the lower and upper houses of parliament in late December, the committee said that while gains had been achieved by the DRDO in recent years inadequacies in structure, funding, and staffing were obstacles to further improvements.

In terms of its structure, the report noted, "The committee stressed the need for a complete revamp and re-orientation of DRDO functions." The committee recommended that the DRDO needed to enhance collaboration with domestic private-sector businesses and academia so that research and development (R&D) activities can be "synergized and better co-ordination achieved".

The committee went on to highlight areas of defence R&D that the DRDO needed to prioritise given capability weaknesses in India. These included, it said, chip technologies and electronic components, propulsion and aero-engines, sensors, and materials.

However, the committee added that in investigating its report it concluded that India is "self-reliant in many systems that DRDO is currently developing". These systems, it said, included "missile systems, radars, sonars, electronic warfare systems torpedoes and recent developments [in] guns and ammunition".

The committee also highlighted concerns in funding and levels of staffing. According to the committee, the DRDO faces a funding shortfall in fiscal year 2019-20 of INR39.3 billion (USD551.5 million). It said this is based on the DRDO's required funding projection of INR229.5 billion for 2019-20 and its actual allocation of INR190.2 billion.

It added that while the DRDO is "managing within the allocations by reprioritising project activities", it recommended that the government allocated "appropriate and adequate funding for DRDO projects... to enhance the indigenisation level in a true sense".

The committee also said that India spends "considerably less" on defence R&D than other prominent countries and that the government's 'Make in India' vision can only become a "reality in the defence sector when justifiable expenditure is channelled toward research and development".

Similarly, the committee pointed to deficits in workforce, specifically in DRDO scientists. It said that the number of authorised scientists employed by the DRDO has remained at 7,255 since the early 2000s despite a six-fold increase in R&D expenditure and the government's 'Make in India' campaign.

The committee said the DRDO's number of employed scientists is "grossly insufficient" and recommended that the government revises its authorised staffing level.

Analysis

The DRDO, which operates under the Ministry of Defence (MoD), was established in the late 1950s and consists of 52 laboratories across India. The agency is concentrated in developing capabilities across seven domains: naval systems and materials; aeronautical systems; armaments and combat engineering; missiles and strategic systems; electronics and communications; life sciences; and micro-electronic devices, computers and cyber.

However, the agency has been the subject of criticism for many years not only from the Indian armed forces but also from parliamentary and watchdog committees. Prime concerns have focused on delays in major R&D projects and for having designed materiel of little operational worth. In 2007, the government also carried out an independent audit of the organisation, which recommended wide-scale restructuring to improve efficiencies and accountability.

While this has not resulted in major reforms, the MoD has implemented several DRDO-related measures in recent years to enhance India's defence R&D capability. These have included a policy for the DRDO to waive licence fees and royalties for several patents to provide local manufacturers with free access to military technologies; MoD efforts to encourage greater collaboration between the DRDO and state-owned companies; and the provision of greater powers within the DRDO to sanction projects internally.

<https://janes.ihs.com/Janes/Display/1963617>

ANI

Fri, 03 Jan 2020



DRDO Chairman pays homage at National War Memorial

ANI | Updated: **Jan 01, 2020 14:22 IST**

New Delhi [India], Jan 01 (ANI): Defence Research and Development Organisation Chairman G Satheesh Reddy on Wednesday paid homage to the fallen soldiers at the National War Memorial in Delhi on the occasion of the 62nd DRDO day.

Earlier in the day, Defence Minister Rajnath Singh had extended his greetings on the occasion of DRDO Day and wished its personnel a successful year ahead.

"On the 62nd DRDO Day, I extend my warm wishes and greetings to all @DRDO_India personnel and their families. The DRDO has made an immense contribution towards developing cutting edge Defence Technologies and Systems. I wish the DRDO family a remarkable and successful year ahead," Singh said in a tweet. (ANI)

DRDO to set up five new labs to prepare Indian armed forces for future high-tech warfare

The specialised areas of work for these laboratories are artificial intelligence, quantum technologies, cognitive technologies, asymmetric technologies and smart materials

New Delhi: India's tactical and strategic defence capabilities are poised to get a boost with Defence Research and Development Organisation (DRDO) establishing five laboratories, each in specialising in core area of futuristic technologies. The specialised areas of work for these laboratories are artificial intelligence, quantum technologies, cognitive technologies, asymmetric technologies and smart materials.

"These laboratories are located at Bengaluru, Mumbai, Chennai, Kolkata and Hyderabad," said a senior DRDO official.

New and futuristic area of asymmetric technologies, which will change the way wars are fought, will be based out of campus of Jadavpur University in Kolkata. The research in hot and critical area of smart materials and their applications will be based out of Hyderabad.

Research in the area of rapidly evolving artificial intelligence will be carried out at Bengaluru, while the all-important area of quantum technology will be based out of IIT Mumbai. The future is dependent on cognitive technologies and IIT Chennai will house the lab embarking in this area of research.

Each of these laboratories is working on a key advanced technology of importance to the development of futuristic defence systems.

The directors of these laboratories were selected independently by a committee chaired by Principal Scientific Advisor to Central government. To realise the goals of these laboratories, directors are empowered with financial and administrative authorities at par with any director of a DRDO laboratory.

Establishment of these laboratories for work on advanced and future technologies will be a big leap forward for DRDO from goal of making India self reliant to future ready in defence technologies.

DRDO in a statement said: "The impact of science and technology on defence systems remains undisputed. Edge in technology continues to define the directions of operational, tactical and strategic warfare paradigms."

It also stated that in today's rapidly evolving world technology is challenging the traditional norms of technology assessment and forecasting. "The pace of innovation is such that today's technology needs to be evaluated and its future potential ascertained with unimaginable immediacy," the defence organisation stated.

Innovations and rapid development of future game changing technologies need to be nurtured with both financial investments and intellectual capital.

"No longer can we wait to evaluate technology till maturity for implementation and then investment. Speed of assessment, rapid prototyping, pace of evaluation and focused development are necessary for us to remain relevant in the field of cutting edge technology," it stated.

The DRDO stated that these laboratories will be known as Young Scientists laboratories and Prime Minister Narendra Modi will be dedicate these to the nation at Bengaluru.

<https://economictimes.indiatimes.com/news/defence/new-drdo-labs-to-boost-indian-defence-capabilities/articleshow/73072702.cms>

Help nations suffering from terrorism, PM Modi tells scientists at DRDO

"This is a decade which will decide what will be the strength of India and where we will be on the world map," PM Modi said

Bengaluru: Prime Minister Narendra Modi on Thursday urged scientists at the Defence Research and Development Organisation (DRDO) to rethink and reshape the organisation to play significant role in helping nations suffering from terrorism.

"This is a decade which will decide what will be the strength of India and where we will be on the world map. This decade is all about young innovators," PM Modi said after dedicating to the nation five DRDO Young Scientists Laboratories.

These labs will come up in Bengaluru, Hyderabad, Chennai, Kolkata and Mumbai where scientists below the age of 35 get priority to contribute for research and development.

PM reminded scientists that they have an opportunity to not only serve the nation, but also the world in terms of security in view of growing threat of terrorism.

"Today there are many nations who do not have any border-related insecurities because they are all surrounded by friendly nations. But such nations never thought that they will have to use weapons because there was never any threat," PM Modi said. DRDO can help such nations in their internal security, he added.

"Your efforts in this direction will be a service to humanity and will strengthen India's position in the world," PM Modi said.

On the appointment of General Bipin Rawat as Chief of Defence Staff (CDS), he said the creation of the new post would bring a major change and it would have a bearing on DRDO too.

He pointed out that the need for a post like CDS was felt for better coordination, synergy and integration between the three armed forces long back and was part of BJP's commitment to the nation, which has been fulfilled.

PM Modi said DRDO should be prepared to take up the challenge where threats would not be just limited to the air and sea, but also cyber and space, which will all decide the strategic dynamics.

"You all are aware that along with air and sea, cyber and space will define the world's strategic dynamics. Along with this, intelligent machines will play a key role in the defence sector in the days to come.

<https://www.ndtv.com/india-news/pm-narendra-modi-asks-scientists-at-drdo-to-help-nations-suffering-from-terrorism-2157937>



From aircraft to aircraft carrier, India capable of building everything: PM at DRDO

As the Prime Minister of the country, I want to say that the government is ready to support the scientists and innovators of the country at every step, Prime Minister Modi said

KEY HIGHLIGHTS

- *According to the research and development wing of the Defence Ministry, Prime Minister Modi's address on 24 August 2014 at a DRDO award function was the inspiration behind creating the Young Scientist Laboratories*
- *The PM said India's missile programme is "one of the outstanding programmes in the world" and appreciated the Indian Space Programme and air defence systems*

Bengaluru: Prime Minister Narendra Modi on Thursday launched five Defence Research and Development Organisation (DRDO) Young Scientists Laboratories in Bengaluru and said that India is among the few countries that have the capability to build everything from an aircraft to an aircraft carrier.

"India is among very few countries that have the capability to build everything from aircraft to aircraft carrier. I am satisfied that work was done sincerely on the suggestion of setting up 5 labs in the field of Advanced Technologies and today five such institutes are coming up in Bengaluru, Kolkata, Chennai, Hyderabad and Mumbai," PM Modi said at DRDO.

He further said, "As the Prime Minister of the country, I want to say that the government is ready to support the scientists and innovators of the country at every step."

According to the research and development wing of the defence ministry, Prime Minister Modi's address on 24 August 2014 at a DRDO award function was the inspiration behind creating the Young Scientist Laboratories.

The PM asked scientists to "prepare a definite roadmap for the new decade where DRDO should be able to set the direction and pace of scientific research in various fields in India".

He also said India's missile programme is "one of the outstanding programmes in the world" and at the same time appreciated the Indian Space Programme and air defence systems.

"The PM said India cannot be left behind in the field of scientific research. The Government is willing to walk the extra mile with the scientific community so that it can invest time in emerging technologies and innovations for national security. The DRDO's innovations would play a huge role in strengthening programmes like Make in India and in promoting a vibrant defence sector in the country," the Prime Minister's Office said in a statement.

<https://www.timesnownews.com/india/article/from-aircraft-to-aircraft-carrier-india-capable-of-building-everything-pm-at-drdo/534927>

India gets CDS at last: A role that will evolve

The need was felt for a single-point strategic military adviser to the government

By Syed Ata Hasnain

To the credit of the government, the Prime Minister announced the intent to create the post of a Chief of the Defence Staff (CDS) on August 15, 2019, and a communiqué was issued on the nuts and bolts related to the adoption of the CDS system. That is in contrast to the 18 long years it took after the Kargil Review Committee (KRC) and the Group of Ministers (GoM) had recommended the creation of a CDS and the integration of the defence ministry. This delay is not something unusual as most countries which have adopted the joint military security model have done so riding roughshod over opposition from within the armed forces and civilian bureaucracy. The United States, which considers itself a model of integration today, did move rapidly into the joint theatre concept after 1986 but till then its four services (including the Marines) resisted it tooth and nail. Only legislation, famously called the Goldwater Nichols Act, saw implementation of the integration under President Ronald Reagan after the failed Grenada operation and the earlier disastrous rescue operation of hundreds of hostages at the US embassy in Tehran in 1980.

In India, Kargil 1999 triggered the need for a CDS. The need was felt for a single-point strategic military adviser to the government. Even after the KRC and GoM recommendations, the government seemed reluctant and moved less than halfway to create a HQ Integrated Defence Staff (IDS), headed by a three-star officer, to address joint aspects. HQ IDS was to be the CDS' domain, but awaited its true head for 18 years.

What has finally emerged may, of course, not meet every aspiration but a fairly exhaustive communiqué has clarified much. As a four-star officer the CDS will be the “first among equals”, but by virtue of his retiring age being 65 will mostly be senior in service seniority to all the three service chiefs. He will exercise no operational command over the three constituent services, but will be the permanent chairman of the chiefs of staff committee (CoSC), giving that appointment stability for up to three years for the present, as against the short tenures which had become a characteristic of the CoSC. There is some criticism about appointing a CDS with only four-star rank; the perception prevails that equivalence of rank does not carry the stamp of authority. However, this is generally the rule in most other nations, and the physical seniority consideration would give authority as per norms of the uniformed services. The CDS will exercise authority over the only conventional joint command — the Andaman & Nicobar Command (ANC) and also the Strategic Forces Command (SFC), where the nuclear launch resources of all three components are integrated for a nuclear response. The latter will make him the nuclear adviser to the PM, although the actual command and control of the nuclear forces may have several other layers. The CDS would also take under his wing the three special agencies involving domains of cyber, special forces and space, and all other systems relating to innovative technology. The 15-year Long Term Integrated Perspective Plan (LTIPP) will also evolve under him as will modernisation, and he will be the one allocating priorities after taking into account the recommendations of the three service headquarters. That means the financial allocations will be his responsibility, and that is where his power will largely lie.

An additional aspect is the three-year leeway given to the first CDS to prepare the ground for an integrated theatre command system. Thus, it is clear that the current CDS system is evolutionary and will progressively adopt more means of integration and joint functioning until an integrated theatre command system emerges something akin to the American model, where the theatre commander reports directly to the President through the defence secretary. Interestingly, an issue has been raised politically about a relative lack of clarity about the “first among equals” system; on who exactly will

render one-point strategic military advice to the government since the CDS has no authority over the three service chiefs. In fact, it is heartening to note that after a long time a critical decision relating to the military is being debated within political circles. Even in the service community this doubt has been raised, and consensus appears on the fact that in the interim the CDS and the three service chiefs will all be invitees to the Cabinet Committee on Security (CCS); a virtual four-point advice as the CDS exercises no operational command and control over the component services and only commands the resources directly under him. Two points of significance here. First, that this is a work in progress and much depends on how the CDS system progresses from here; perhaps only the CDS may be consulted by the government and a service chief may be called upon to render more operational details, contingent upon the type of operation and the service primarily involved. Second, if and when the integrated theatre command system is in place, none of the service chiefs will have operational control over their forces; it is the theatre commanders who will enjoy that. In that situation, the CDS will be the one-point adviser to the government after the consultations with the integrated theatre commander have been conducted. There is nothing sacrosanct about this, and a unique system suited to Indian conditions may well emerge over the next few years.

Lastly, there is a question being raised about the newly-created department of military affairs, which the CDS will head with the status of a secretary. It is to be seen whether this will be the precursor to a more integrated MoD if the HQ IDS acts as the core of the DMA with some inducted civilian bureaucracy. The defence secretary will obviously remain the coordinator between different departments of the MoD, but the CDS will have the power to send files directly to the Raksha Mantri (RM), thus circumventing the bureaucracy. A long-pending anomaly also needs correction when such momentous decisions have been taken. It is time the defence of India devolves on the RM. By a flawed understanding, this still remains the responsibility of the defence secretary, who is neither experienced nor empowered enough to execute it.

Much more debate on the CDS will follow in due course, but for now we need to celebrate a sound decision taken after years of political and bureaucratic procrastination.

(The writer, a retired lieutenant-general, is a former commander of the Srinagar-based 15 Corps. He is also associated with the Vivekananda International Foundation and the Institute of Peace and Conflict Studies.)

<https://www.asianage.com/opinion/columnists/030120/india-gets-cds-at-last-a-role-that-will-evolve.html>



Fri, 03 Jan 2020

CDS sets deadline to prepare roadmap

Newly-appointed first ever Chief of Defence Staff (CDS) General Bipin Rawat has directed various branch heads of Integrated Defence Staff in the Defence Ministry to come up with recommendations for inter-service synergy and jointness in time bound manner. He also asked the officers to firm up the proposal by June this year to set up Air Defence Command to protect India's airspace and common logistics support pools as part of synergy.

This directive comes in the backdrop of the charter of the CDS to achieve optimal synergy between the three Services including the Army, Navy and IAF to fight modern day war. Moreover, the CDS will also ensure maximum utilization of resources within the budgetary constraints to maintain operational readiness and sustain the temp of modernisation.

On assuming charge as the first CDS, Rawat on Wednesday held a meeting with important functionaries of the Integrated Defence Staff here, officials said on Thursday.

Besides directing that the proposal to create Air Defence Command be prepared by June 30, 2020, he also set out priorities for execution of synergy by June 30 and December, 31 2020. Some of the areas identified for jointness and synergy include creation of common logistics support pools in stations where two or more services have their presence.

Emphasising collegiate system of functioning, Rawat directed that all three services and Coast Guard must be consulted and their views obtained in a time bound manner. Decisions will, however, be taken to ensure optimisation of resources. Efforts will be made to cut out infructuous ceremonial activities, which are manpower intensive. The CDS stressed that all must work towards accomplishing desired results and coming up with healthy views and ideas.

After taking charge as the CDS on Wednesday, Rawat had said the armed forces stay far away from politics. His comments come in the backdrop of his recent comments condemning student protests which drew sharp responses from political parties and on social media.

"Armed forces stay far away from politics. We work according to the directions of the Government in power," he said talking to the media after reviewing a tri-service guard of honour outside South Block.

Stating that the task cut out for the CDS is to integrate the three services and enhance their capability, Rawat said the CDS will "remain neutral within the Service [Army] and to all three services."

It is important to ensure that the 1+1+1 combine of the three services should add up to more than 3 through synergy, he observed. "We have to achieve more through integration. The synergised effort should not be the sum total of the whole. It should be more," he observed adding his focus will be to ensure best and optimal use of resources allocated to the three services.

The mandate of CDS includes promoting jointness in procurement, training and staffing for the Services; facilitation of restructuring of military commands for optimal utilisation of resources by bringing about jointness in operations, including through "establishment of joint/theatre commands and promoting use of indigenous equipment by the Services."

However, there is no consensus presently among the Services on the formation on theatre commands and the Air Force has been especially opposed to the move. On this, Rawat said there are methods to achieve theaterisation. "I think we are copying Western methods and what others have done. We can have our own systems. We will work out a mechanism... We have to find a system which suits India," he stated.

The CDS has an office in South Block and will continue to wear the uniform of the parent service. However, the rank badges and accoutrements of the CDS reflect jointness, integration and synergy and accordingly there is a new Peak cap, shoulder rank badges, belt buckle and car flag.

<https://www.dailypioneer.com/2020/india/cds-sets-deadline-to-prepare-roadmap.html>

सीडीएस ने 30 जून तक वायु रक्षा कमान के सृजन का खाका तैयार करने को कहा

नयी दिल्ली: प्रमुख रक्षा अध्यक्ष (सीडीएस) जनरल बिपिन रावत ने अपने शुरुआती निर्णयों में भारत के आकाशीय क्षेत्र की सुरक्षा पुख्ता करने के लिए एक वायु रक्षा कमान बनाने के वास्ते 30 जून तक खाका तैयार करने के निर्देश जारी किये। अधिकारियों के मुताबिक जनरल रावत ने इस बात को भी रेखांकित किया कि उन सभी अनुपयोगी रस्मी गतिविधियों को कम किया जाएगा जिनमें अतिरिक्त श्रमशक्ति लगती है। अधिकारियों ने कहा कि तीनों सेनाओं के बीच सामंजस्य और तालमेल के लिए कुछ क्षेत्र चिह्नित किये गये हैं, जिनमें ऐसे स्टेशनों पर साझा 'साजो-सामान सहयोग पूल' स्थापित करना शामिल है, जहां दो या अधिक सेनाओं की उपस्थिति है। जनरल रावत ने बुधवार को देश के पहले प्रमुख रक्षा अध्यक्ष (सीडीएस) की बागडोर संभाली। यह भविष्य की सुरक्षा चुनौतियों से प्रभावी तरीके से निपटने के लिए तीनों सेनाओं के बीच समन्वय लाने की भारत की सैन्य योजना के लिए महत्वपूर्ण घटनाक्रम माना गया है। पदभार संभालने के बाद सीडीएस ने एकीकृत रक्षा स्टाफ के महत्वपूर्ण अधिकारियोंके साथ बैठक की और अनेक प्रकोष्ठों के प्रमुखों को तीनों सेनाओं के बीच समयबद्ध तरीके से तालमेल और सामंजस्य बढ़ाने के लिये सिफारिशें देने को कहा। सीडीएस के रूप में जनरल रावत सभी तीनों सेनाओं के संदर्भ में रक्षा मंत्री के प्रधान सैन्य सलाहकार होंगे। वह नये गठित सैन्य मामलों के विभाग का कामकाज देखेंगे। एक अधिकारी ने कहा, "सीडीएस ने निर्देश दिया है कि वायु रक्षा कमान बनाने के प्रस्ताव को 30 जून तक तैयार किया जाए।" उन्होंने तीनों सेनाओं के बीच परस्पर सहयोग के लिए 31 दिसंबर तक विभिन्न पहलों को लागू करने की प्राथमिकताएं भी तय कीं।

(यह आर्टिकल एजेंसी फीड से ऑटो-अपलोड हुआ है। इसे नवभारतटाइम्स.कॉम की टीम ने एडिट नहीं किया है।)

<https://navbharattimes.indiatimes.com/india/cds-asked-to-prepare-a-blueprint-for-creation-of-air-defense-command-by-30-june/articleshow/73074841.cms>

Theatre command model must focus on future battles: Experts

As the country's first chief of defence staff (CDS), the mandate given to General Bipin Rawat includes facilitating the restructuring of military commands for optimal utilisation of resources by bringing jointness in operations, including through establishment of theatre commands

By Rahul Singh

India will have to evolve its model of theaterisation to fight future battles and it could involve the creation of three to four theatre commands for effective command and control of the three services and pursuing national objectives, said two leading experts on jointmanship or co-ordination and integration in terms of strategy, capabilities and execution across the three services.

As the country's first chief of defence staff (CDS), the mandate given to General Bipin Rawat includes facilitating the restructuring of military commands for optimal utilisation of resources by bringing jointness in operations, including through establishment of theatre commands. The government expects the CDS to achieve key jointmanship targets in three years.

Setting up theatre commands is critical as the military has too many service commands handling a single adversary, said Lieutenant General Satish Dua (retd), who was the senior-most military officer handling all tri-service affairs until October 2018.

"Take the case of Pakistan. We have a total of seven commands taking care of the western neighbour. In my view, India needs to create three theatres --- northern, western and southern --- with tri-services assets to protect its interests," he said. The northern and western theatres would take care of China and Pakistan, respectively, he said.

Theaterisation refers to placing specific units of the army, the navy and the air force under a Theatre Commander. Such commands will come under the operational control of an officer from any of the three services, depending on the function assigned to that command.

Creating theatres would involve merging the existing commands and the department of military affairs under the CDS will have to adopt a cautious approach to avoid turbulence that could accompany the restructuring, Dua said. "Some existing commands can be merged now and some in phases to avoid turbulence," he said.

Dua was intricately involved in promoting jointness in the military before retiring as Chief of Integrated Defence Staff to the Chairman, Chiefs of Staff Committee on October 31, 2018.

The military would require four theatres to execute its missions, with two commands assigned the role of handling China, said Lieutenant General Vinod Bhatia (retd), who heads the Centre for Joint Warfare Studies, a think tank set up by the defence ministry 12 years ago.

Bhatia was part of the Lieutenant General DB Shekatkar (retd) committee whose recommendations on military reforms are being implemented by the government to make the armed forces more effective. The committee is among the several panels that have recommended the appointment of CDS.

"We can have two theatres for China (north-western and north-eastern), one for Pakistan (western) and a fourth one for peninsular India (southern). The country's geography requires two theatres for China, even though the northern adversary has only one theatre for India. That's because the geography on their side is different and allows excellent connectivity all along the border," he said.

Both Dua and Bhatia said the theatre commands could be headed by the best officers from any of the three services. The two experts said the model of theaterisation formulated by other leading militaries such as the United States and China would not work for India and the country would have to come up with its own mission-specific theatres.

On Wednesday, Rawat said he would work towards creating theatre commands to prepare the military for future battles, adding that India's armed forces need not necessarily imitate the models devised by western militaries for this.

The US department of defense has 11 combatant commands, each with a geographic or functional mission. The ones tasked with defending American interests across geographies are the Africa Command, Central Command, European Command, Indo-Pacific Command, Northern Command and Southern Command.

Similarly, the Chinese People's Liberation Army has five theater commands --- eastern, southern, western, northern and central, with its western theater handling the entire border with India.

"The Indian model will have to be different because we are not an expeditionary military. The US model, for instance, doesn't look at their own wars; it looks at others' wars. Our model will be based on our security needs and I am confident that its implementation can kick off within three years," said Dua.

Bhatia concurred that the country would have to devise its own theaterisation model as other global models would not work in the Indian context because "the threats and challenges we face are vastly different."

Commenting on theaterisation on Wednesday, Rawat said, "We can have our own system. We will work out a mechanism. We have to study and work with the three services to come out with a mechanism that suits the Indian system."

<https://www.hindustantimes.com/india-news/theatre-command-model-must-focus-on-future-battles-experts/story-8NRCVZ5PV5Iggml9bq6u9N.html>

Task cut out, Def Secy to handle 'war preparation', CDS tri-services

By Ajay Banerjee

New Delhi: President Ram Nath Kovind has notified new rules of business, defining the responsibilities of the newly created Department of Military Affairs and the tasks laid out for the Defence Secretary.

The Department of Military Affairs is headed by the Chief of Defence Staff, General Bipin Rawat.

The government has maintained that the Defence Secretary will be responsible for the job of 'defence of India' and preparation for defence which is 'conducive in times of war'.

The Department of Military Affairs will be looking after the work of the Armed Forces of the Union, namely Army, Navy and Air Force. The Territorial Army and the works related to the Army, Navy and Air Force will also fall under the department. Except capital acquisitions, it will also handle procurement exclusive to the services.

The CDS will go in for joint planning over procurement, training and staffing for the services. He has been tasked with facilitation of restructuring of military commands for optimal utilisation of resources by bringing about joint efforts in operations through establishment of theatre commands. He will be promoting use of indigenous equipment by the services.

The Defence Secretary will be looking after the Coast Guard, including surveillance of maritime zones against oil spills and combating oil spills in various maritime zones.

The Armed Forces Headquarters Civil Services will be under the Defence Secretary. The National Cadet Corps, Remount Corps, Veterinary Corps and Canteen Stores Department will also be with him.

Hydrographic surveys and preparation of navigational charts, formation of cantonments, delimitation of cantonment areas will also be with the Defence Secretary. He would also have powers for the acquisition, requisitioning and custody of land and property for defence purposes.

The Defence Accounts Department, the purchase of food stuff for military requirement, Border Roads Development Board and Border Roads Organisation, Institute for Defence Studies and Analysis and National Defence College will be with the Defence Secretary.

<https://www.tribuneindia.com/news/task-cut-out-def-secy-to-handle-%E2%80%98war-preparation%E2%80%99-cds-tri-services-20612>

Hindustan Aeronautics, Wipro 3D join hands for 3D printing in aerospace

The companies hope the initiative will bring metal 3D printing into the mainstream of Indian aerospace

By Samreen Ahmad

Bangaluru: Hindustan Aeronautics Ltd (HAL) and Wipro 3D, the metal additive manufacturing (AM) business of Wipro Infrastructure Engineering (WIN), have joined hands to design, develop, manufacture and repair aerospace components using metal 3D printing technology. Prove-outs and certification of components developed using metal 3D printing are other key elements of this pact.

The companies hope the initiative will bring metal 3D printing into the mainstream of Indian aerospace.

“Wipro 3D and HAL have worked together in the past. This further strengthens our collaborative efforts to create additive technology leadership in aerospace,” said Pratik Kumar, CEO, Wipro Infrastructure Engineering.

Globally, the aerospace industry has been one of the foremost adopters of metal 3D printing due to the benefits of faster design iterations, weight and geometry optimisation, performance improvement and flexible manufacturing. In fact, this market is expected to grow by more than 23 percent to reach \$4.76 billion by 2023, according to a MarketsandMarkets report.

HAL too has established facilities at Bengaluru for 3D printing for applications in the areas of design of aircraft, manufacturing and maintenance of aero-engines but these are limited to build components or prototype models for scientific investigations.

The MoU will extend HAL’s additive manufacturing capability beyond design validation, said a source close to the development.

“Qualification of parts for aerospace is challenging as it would require prove out and extensive testing followed by certification by regulatory authorities which may also include flight testing. This cooperation would be a unique opportunity for both the parties,” said Shekhar Shrivastava, CEO, Bangalore Complex, HAL.

Wipro 3D recently developed India’s first industrial-grade metal 3D printer in collaboration with the Indian Institute of Science, which will cater to the aerospace, defence and oil & gas sectors.

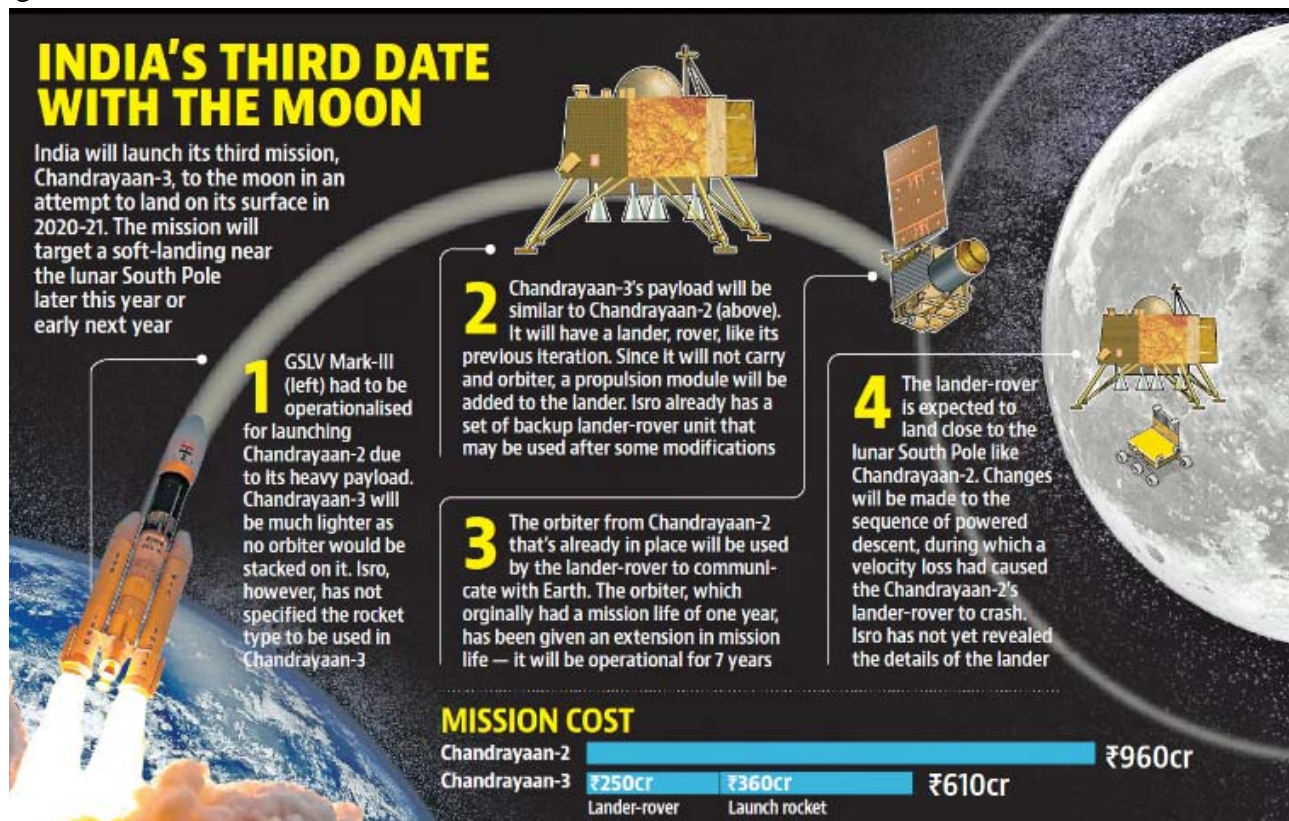
https://www.business-standard.com/article/companies/hindustan-aeronautics-wipro-3d-join-hands-for-3d-printing-in-aerospace-120010201024_1.html

‘Crucial gaps in ISRO’S plans to use more Indian products’: House panel Chief

ISRO has been regarded a jewel in India’s technology crown over several years for its performance in space research and exploration

By Saubhadra Chatterji

New Delhi: The Chairman of a key parliamentary panel has pointed out “crucial gaps” in the national space agency’s plan to use more Indian products, and called for eminent facilities located in southern India to develop partnerships with national institutions elsewhere in the country for cutting-edge scientific research.



Jairam Ramesh, chairman of the House panel on science, technology, environment, forests & climate change, made these observations in a letter to Rajya Sabha chairman Venkaiah Naidu after the committee visited 15 top-notch national institutes, including the Indian Space Research Organisation (Isro) and the Indian Institute of Space Science & Technology over five days.

The panel will also prepare a detailed report on the tour.

In his letter, Ramesh hailed Isro’s indigenisation programme as “phenomenal” but added that some crucial gaps remained. “Over 80% of electronics components are imported. Carbon composites are sourced from only one Japanese company. Microprocessor design capability is impressive but the country still awaits a state-of the-art fabrication and manufacturing facility. All these gaps need to be filled urgently,” he wrote to Naidu.

The panel is likely to suggest that Isro should look for more avenues to use made-in-India components for its space programmes.

Talking to HT, Ramesh said: “It’s not healthy that one particular company will be supplying a critical component of our space programme. We want Make in India to flourish here. It will take time but the government must start building indigenous capabilities in manufacturing.”

Isro has been regarded a jewel in India’s technology crown over several years for its performance in space research and exploration. In 2013, it launched India’s first mission to Mars, making India Asia’s first nation to reach the Martian orbit, and the first country in this world to achieve this on the first attempt. This year, Isro scientists will work towards sending India’s first manned mission to space. The space agency said that the first unmanned flight will happen in December this year and the manned flight next December.

Ramesh’s letter says that ISRO’S launch facility at Sriharikota needs substantial upgrades in terms of access and logistics infrastructure, since the number of annual launches is projected to double in the next five years. “The launch facility has a coastline of over 50km which needs the highest level of maritime security,” he wrote.

The panel is also set to suggest that the Indian Institute of Space Science & Technology, which is a major player in building human resources in ISRO, should be declared as an Institute of National Importance through an Act of Parliament.

Ramesh’s letter is significant because panels don’t usually write to the Chair of the House to brief them about study tours. The panels just produce final reports, which are placed before Parliament or the House chairs.

He has also pitched for better partnerships between national institutes based in southern India and other parts of the country. Pointing out that there is an “excellent research ecosystem” in the southern states, he wrote: “National institutions set up in Kerala, Karnataka and Tamil Nadu that include Isro need to build partnerships with institutions elsewhere in the country and create similar ecosystems in other states as well.”

The panel’s chairman clarified that he doesn’t want such partnerships to be confined between elite institutions, but to include local engineering colleges.

<https://www.hindustantimes.com/india-news/space-research-house-panel-chief-stresses-on-the-i-in-isro/story-0xvdQvSsTm7CQAHj5QTCoo.html>

Gaganyaan mission: 4 IAF top guns to undergo 11-month training in Russia, no woman among them

By Surendra Singh

New Delhi: Four astronaut candidates who have been shortlisted for an advanced training for the country's maiden human spaceflight mission or Gaganyaan are IAF top guns. The middle-ranking officers will undergo the training programme for "less than a year in Russia and will undergo further training in India". However, no woman is among the chosen candidates for the mission, slated for launch by December 2021.

Without revealing the names, Sivan told TOI, "The four IAF pilots shortlisted are all men in the age group between 35 and 44. There is no woman among them. I will formally invite them to the Isro headquarters and we'll give them a pep talk before they leave for Russia in the third week of this month." The age group indicates the four could be either squadron leaders or wing commanders.

PM Narendra Modi, during his I-Day speech from the ramparts of Red Fort on August 15, 2018, had announced that an "Indian son or daughter will undertake a manned space mission carrying the Indian flag". The selection zone indicates that IAF fighter pilots were considered for the mission.

On the training programme, the ISRO chief TOI, "The four will undergo an 11-month training in Russia (at Glavkosmos-run Gagarin State Scientific Research and Testing Cosmonaut Training Center). The training will include several tests, including physical tests. After 11 months, the pilots will be trained in India and will do crew module simulation."

On Gaganyaan's flight preparation, he told TOI, "Several tests will be conducted from this month onwards that will go on throughout the year like engine qualification for human rating (as currently no rocket is qualified to carry humans), integrated air drop test of the crew escape system and modified vehicle with a 4-metre payload faring (edge of a rocket where the crew will be placed). We will target to launch the first unmanned Gaganyaan test flight carrying a humanoid by December or early next year".

He said the humanoid will simulate functions of a human in space that will give scientists an opportunity to study it and help fix things for the manned mission. "We will check if the environment control and life support system performs satisfactorily for humans in space," he said.

After the first unmanned test-flight, ISRO will try to conduct the second unmanned flight by July 2021 before gearing up for the final manned mission by December 2021.

According to ISRO'S plan, the chosen astronauts — could be one or three — enclosed in a crew module mated to a service module will spend 5 to 7 days in space and perform various experiments there before being brought to the Earth.

Gsat-30 liftoff on Jan 17 this year's first satellite launch The lift-off of geostationary communication satellite Gsat-30 on January 17 from the European spaceport in French Guiana will be ISRO'S first satellite launch this year, space agency chief K Sivan told TOI. Gsat-30 weighing 3450 kg will be a replacement for Insat-4A satellite. The agency is also scheduled to launch high-throughput satellite Gsat-20 this year. Three other high through put satellites Gsat-19, Gsat-29 and Gsat-11 had already been launched. The four together will boost internet revolution in India as it will provide high bandwidth connectivity of over 100 Gbps, including in-flight and maritime connectivity. Besides big missions Aditya L1 solar and SSLV test flight missions, Sivan said, "25 missions have been planned for 2020."

<https://timesofindia.indiatimes.com/india/gaganyaan-mission-4-iaf-top-guns-to-undergo-11-month-training-in-russia-no-woman-among-them/articleshow/73077080.cms>

Powered by ISRO: India's plan for a manned space mission crosses an important milestone

In a big step for India's first manned space mission – christened Gaganyaan – ISRO Chairman K Sivan has announced that the final four astronauts have been selected for the mission and will begin their training in Russia from the third week of this month. Additionally, Sivan has said that the design work for Gaganyaan has been completed and that ISRO has made progress in the human rating of its systems, including propulsion systems and crew escape module. In fact, an unmanned test flight has been scheduled for this year.

ISRO is powering ahead despite its setback last year when the Chandrayaan-2 probe failed to land on Moon. Actually, the Chandrayaan-3 mission has also been cleared and is expected to launch later this year. But it is the manned space flight, scheduled for 2022, that will truly be a feather in ISRO's cap. The mission will catapult India into an elite group of countries – including the US, Russia and China – that have sent astronauts to space on their own home grown missions. In this regard, Gaganyaan astronauts are likely to use space suits from Russia, once again highlighting the close cooperation in space between the two countries.

There is no denying that Isro has been a standout government agency. That today ISRO has achieved a high degree of proficiency in satellite launches is exemplified by its remarkable launching of more than a hundred satellites at one go a few years ago. And apart from the direct benefits accruing from these launches, space missions also provide a huge amount of technical inputs that benefit other sectors such as military and aerospace. The manned spaceflight will take this knowledge further. Here's hoping ISRO will continue pushing the boundaries of Indian space science and satisfying public trust in its engineering excellence.

<https://timesofindia.indiatimes.com/blogs/toi-editorials/powered-by-isro-indias-plan-for-a-manned-space-mission-crosses-an-important-milestone/>

Science Congress takes 'extra care' to avoid pseudo science

107th edition to commence today in Bengaluru

JACOB KOSHY
NEW DELHI

On the eve of the 107th Indian Science Congress (ISC), set to commence in Bengaluru, organisers said they had taken "special care" to ensure that 'pseudo-scientific' articles or talks did not creep in.

At last year's ISC at Lovely University, Jalandhar, G. Nageswara Rao, the then vice-chancellor of Andhra University, asserted that the *Kauravas* of the *Mahabharata* were born of the stem-cell technology and test-tube baby science, and that Rama and Ravana had fought with 'guided missiles.'

While pseudo-scientific remarks at the congress are not unprecedented – in 2015, at the event in Mumbai, there was an entire session dedicated to 'aircraft



Preparations on: The GKVK campus in Bengaluru, where the Indian Science Congress will be held. *SPECIAL ARRANGEMENT

from the Vedic age' – Mr. Rao's remarks stood out, as it was the first time a senior scientist from a well-regarded institution had made such comments.

"Only those who have sent their entire papers will have a chance to speak, irrespective of the seniority of the speaker," Anoop Kumar Jain, General Secretary (Scientific Activities), Indian Science Congress Associa-

tion (ISCA), told *The Hindu*.

As part of the standard process, the ISCA constitutes sectional committees – 14 this year – to evaluate the scientific merit of papers submitted by its members.

The solicitations for papers, which span across fields like agricultural sciences to archaeology, are sent to prominent colleges, universities and research institutes.

The Kolkata-based ISCA

has been the organiser of the congress since 1914, and is funded by the Union Department of Science and Technology.

Prime Minister Narendra Modi is slated to inaugurate the congress, which is scheduled to take place between January 3-7, at the Gandhi Krishi Vignana Kendra (University of Agricultural Sciences) in Bengaluru on Friday.

The theme for the congress this year is 'science and technology: rural development'. To emphasise it, the function, which draws young scholars in droves, will include a Farmer's Science Congress, providing a platform for innovative farmers.

The farmer's congress will also discuss agrarian distress and strategies to mitigate and navigate the impact of climate change on agriculture, among other pressing issues.