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the pioneer

Sun, 04 Feb, 2018

Defence Stall Key Attraction In B'swar Expo

The Integrated Test Range (ITR) and the Proof and Experimental Establishment (PXE), two major units of DRDO based at Chandipur, showcased their products and activities in the Defence stalls at the district level Industrial Expo and Pallishree Mela that began from Wednesday here.

The models of missiles, tanks and guns were displayed to show the fire power of India. Besides, the shielding mechanism against any enemy attack was also displayed. The DRDO personnel were explaining various queries of the enthusiastic visitors.

The DRDO pavilion was a key attraction for the visitors, mainly for the youths. For the locals here, they have the opportunity to see technological advancement in the field of missile for India, about which they otherwise read in papers and watch in televisions.

"Every year although we come and see these defence equipment, still we have a never ending wish to see them again and again. These are very interesting and give a sense of pride for our nation and Defence system," said a visitor.

The ITR pavilion, besides showing recorded video of launching of some of the missiles, carried out by the unit also showed its brief history from establishment of the unit in Chandipur till date.

"Agni-V, a long range missile, mounted in a mobile launcher is displayed here. This is to show people that we are capable of launching the missile from rail, road mobile launcher," said an officer of DRDO.

"We are excited to see some of the pre- recorded live visuals of the missiles flight mission. This is one of the best career options and one should aspire to be part of the DRDO," a college student said.

In the five-day fair, as many as 500 stalls from various sectors, including SHGs and other groups, were set up.

"Besides big industries, downstream and ancillary industries, the focus is on the agro based, food processing ones and handicrafts. We are happy with the participants and footfall as well," key member of Expo Committee and chairman of Balasore Chamber of Industries and Commerce (BCIC) Himansu Das, said.

http://www.dailypioneer.com/state-editions/bhubaneswar/defence-stall-key-attraction-in-bswar-expo.html

The Tribune
VOICE OF THE PEOPLE

Mon, 05 Feb, 2018

Will deepen ties to fight Sino sea challenges: US Air Chief

Expresses concern over China's rising influence in Indo-Pacific region

The Indian and the US air forces will significantly step up operational cooperation to complement the strategic interests of the two countries in the Indo-Pacific region, Chief of US Air Force General David L Goldfein has said, while expressing concern over China's rising military influence over the area.

Calling India a "central strategic partner" of the US in pursuing common interests in the region, he said two of the world's largest air forces were going to jointly shift the focus on the Indo-Pacific region while asserting that the rules-based order must be preserved in the critical sea lanes.

Goldfein, who held extensive talks with Air Chief Marshal BS Dhanoa and the top brass of the defence set-up during his three-day India visit that ended yesterday, said the "Quadrilateral" coalition among the US, India, Japan and Australia would provide for deeper cooperation between the Indian and American air forces.

Asked if cooperation between the two forces would deepen in the wake of the four countries joining hands with an aim at containing China's influence in the Indo-Pacific region, he replied, "I do (think so) and that is a big part of my visit and in my discussions here".

In June last year, two Lancer heavy strategic bombers of the US Air Force had conducted flights over the South China Sea, sending a clear message to China against its military build-up in the disputed area. Three US aircraft carriers — the USS Nimitz, USS Ronald Reagan and USS Theodore Roosevelt — have also been operating in the Indo-Pacific region.

"We have common interests in preserving the rules-based order. So while we look for opportunities for partnerships, it is actually appropriate also for us to be critical for those who are trying to change that in ways that may not benefit the region," he told PTI in an interview here.

In November, India, the US, Australia and Japan gave shape to the long-pending "Quad" to develop a new strategy to keep the critical sea routes in the Indo-Pacific free of Chinese influence.

Referring to "Quad" or "quadrilateral coalition", the US Air Force Chief said there was a natural convergence among four countries to work towards preserving the rules-based order, adding cooperation between Indian and US air forces would increase at several levels. — PTI

THE ECONOMIC TIMES
WWW.ECONOMICTIMES.COM

Mon, 05 Feb, 2018

3 Jawans Killed in Pakistan Shelling

No letup in violations: 17 people, including 9 security personnel, have died in border firing this year

Jammu: Three jawans were killed and five persons injured on Sunday in heavy shelling by Pakistani troops along LoC in Poonch and Rajouri districts of Jammu and Kashmir forcing Indian troops to retaliate, officials said.

Pakistani forces opened unprovoked and heavy firing and shelling along LoC in Bhimbher Gali sector of Rajouri district this evening, a senior army officials told PTI.

In the heavy shelling, three jawans were killed and two others injured, they said, adding that Indian Army was giving a befitting reply as heavy exchanges were on.

Earlier today, a 15-year-old girl and a soldier were injured as Pakistani troops violated ceasefire by targeting forward villages and posts along the Line of Control (LoC) in Poonch and Rajouri districts, officials said.

With these casualties, 17 people, including nine security personnel, died and 70 were injured in Pakistani shelling and firing along the LoC and International Border in the Jammu region this year.

THE TIMES OF INDIA

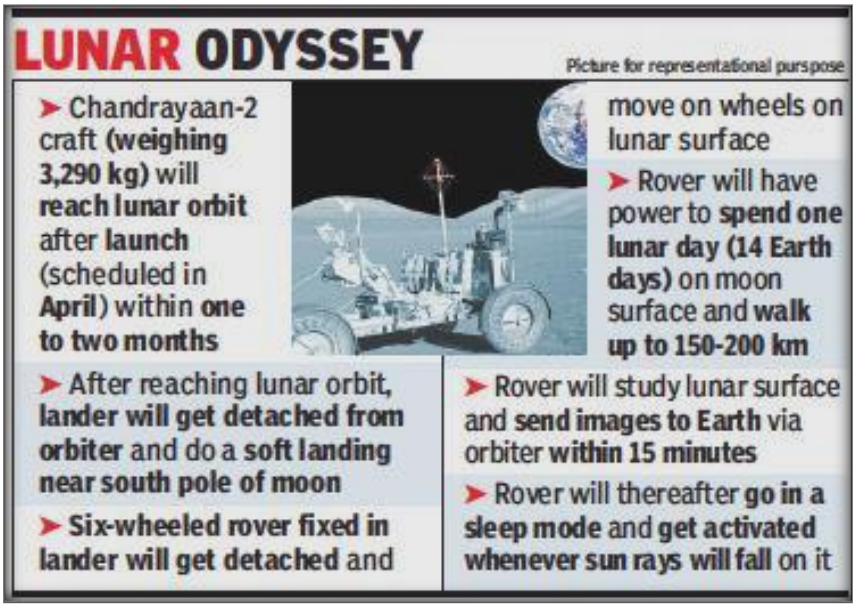
Mon, 05 Feb, 2018

Rover to spend 14 days on moon surface: Isro chief

'Will Send Photos of Moon to Earth within 15 Mins'

By Surendra Singh

New Delhi: Gearing up for its most challenging space mission, Indian Space Research Organisation (Isro) is leaving no stone unturned to make the Chandrayaan-2 (lunar-2) mission a success. Unlike the first lunar mission when a PSLV rocket carried the spacecraft to the moon's orbit, this time heavy-payload lifter GSLV Mk II will launch the spacecraft weighing 3,290kg as the module will carry an orbiter, a rover and a lander to the moon.



Giving exclusive details about the mission, Isro chairman Dr K Sivan told **TOI,** "Chandraayan-2 is a challenging mission as for the first time we will carry an orbiter, a lander and a rover to the moon. The launch date schedule is sometime in April. Once the GSLV rocket carrying the spacecraft is launched from Sriharikota, the orbiter will reach the moon's orbit in one to two months. (The moon's orbit is 3,82,000km away from the earth's surface)."

Dr Sivan said, "After reaching the moon's orbit, the lander will get detached from the orbiter and do a soft-landing near the south pole of the moon. The 6-wheeled rover fixed within the lander will get detached and move on the lunar surface. The rover has been designed in such a way that it will have power to spend a lunar day or 14 Earth days on the moon's surface and walk up to 150-200 km. It will do several experiments and on-site chemical analysis of the surface."

The Isro chairman said, "The rover will then send data and images of the lunar surface back to the Earth through the orbiter within 15 minutes. After spending 14 earth days, the rover will go in a sleep mode. We are hoping the rover will again come alive whenever that part of the moon (where the rover will land) gets sunlight and recharges the rover's solar cells. Besides the rover, the orbiter will also capture images of the moon while orbiting it."

On testing of lunar components, Dr Sivan said, "All three components of the lunar module are almost ready. Currently, there integration is going on. Once the module is ready, it will have to go through rigorous tests."

On fixing launch date, he said, "The launch date will depend on various factors like the moon's relative position with respect to the Earth. Once the GSLV is launched, it will put the spacecraft in the 170 km x 20,000 km elliptical orbit. From the elliptical orbit, the craft will be manoeuvred towards the lunar orbit by firing thrusters. Therefore, we expect it to reach the lunar orbit in two months."

THE HINDU

Mon, 05 Feb, 2018

ISRO needs 4 years to catch up with satellite demand: Dr. Sivan

By Madhumathi D.S.

Our aim is to meet the immediate requirement with a target of 18 launches per year; The Chandrayaan-2 mission will also be launched this year

It has been a meteoric journey from a small farming village, Sarakal Vilai, in Kanniyakumari for K. Sivan*, who has taken charge as the Secretary, Department of Space, and Chairman of the Space Commission and the Indian Space Research Organisation. From early education in a Tamil medium school, through a distinguished education and career in aerospace engineering, Dr Sivan has played a significant role in ISRO's success with its two satellite launch vehicles — the PSLV and the GSLV — especially in taming the elusive GSLV, which he called `the naughty boy' of Indian space. Just days after taking on new responsibilities, Dr. Sivan shares his plans for ISRO's stepped up launch schedule and steps towards manned space flight.*

You have just taken charge as Secretary, Department of Space, and Chairman, ISRO and the Space Commission. In the country's space programme which area do you think needs immediate attention?

We now have 43 satellites in space — for communication, earth observation and navigation. To meet the present national requirement, we need an equal number of satellites in addition. The frequency of launches must definitely increase. With the present launch capability, it will take us four years to make the required satellites and launch them. By then we would need to replace a few [older] satellites. It is like trying to catch up with a moving bus! This gap can be met only by increasing the launch frequency. Our aim is to meet the immediate requirement and for that, we have set 18 launches per year as the target.

For over a decade now, ISRO has been facing a serious shortage of satellite transponders because of an unforeseen demand from various users and leasing some capacity on foreign satellites. How will you tackle the gap?

Yes, we are really short of around 100 transponders. But we are going to manage that with the new satellites that we will launch. We hope to bridge the gap very soon. One major satellite that we plan to launch in a couple of months is GSAT-11. It is around six tonnes [6,000 kg]. Once it is launched and starts working, most of our problems should be solved. It is getting ready and a launch date is not fixed.

We will launch it from Kourou [in French Guiana, South America].

Do you see a need to change or re-focus activities related to development of launch vehicles, satellites and infrastructure?

There is really no need to change anything. In ISRO we define our priorities and requirements very clearly and well ahead. We have a clear plan up to 2025 for launch vehicles and spacecraft. Beyond that, too, there is an outline as to which way we should go. We have a three-year action plan.

Which missions are coming up this year?

As a part of the three-year short-term action plan, immediate missions that we plan to do this year are the GSLV-F08 that will launch the GSAT-6A communication satellite [around February]. Then we will have a PSLV mission with navigation satellite IRNSS-1I. Then comes the second developmental flight D2 of GSLV-MkIII. It will launch the high throughput satellite GSAT-29. Later, GSAT-11, which will be our heaviest satellite as of now, will be launched from Kourou. The Chandrayaan-2 mission will be launched this year on another GSLV.

At what stage are some of ISRO's ambitious projects — the semi-cryogenic launch vehicle and the human space flight?

For the semi-cryogenic launch vehicle, the engine development is going on. Some critical [sub-systems] are getting fabricated or tested. Our target is to test fly it sometime in 2019.

The human space flight is really not in our approved programmes for now. Before it is taken up, a human mission requires many technologies. We should develop them and be ready to execute it in a shorter period. For example, the crew module shaping, certain thermal systems and the CARE (Crew Module Atmospheric Re-entry Experiment) that was tested in a partial flight of the GSLV-MkIII in 2014.

In the case of any disaster, there should be an emergency plan to rescue the crew from the capsule. One such experiment called 'pad abort' will be taken up this year. Studies related to life support systems, space suits, cabin pressure, oxygen levels, crew hygiene etc. should be completed.

Last year, a plan was initiated to entrust the entire production of PSLV launchers to industry. A similar plan is under way to produce satellites. What is their status and how will this plan help?

The process is on to give the major chunk of PSLV production to industry. Internal committees are looking at how to make work packages [i.e. distribute tasks.] The selection process is on. The first PSLV from industry should roll out in 2020. If this happens, it will take care of half our job. More people in ISRO will be available for doing R&D.

Of the target of 18 launches per year, we would like to do 12 to 13 PSLVs, of which a major chunk would be through industry; three GSLVs and two GSLV-Mark IIIs.

Except for defining the modalities, which will take time, I would say that it should not be an issue for us. Major industries such as HAL (Hindustan Aeronautics Ltd,) L&T, Godrej and MTAR have been already contributing to our programme in big ways. A similar thing is happening in the satellite area also, although industry has already built one satellite under ISRO's guidance.

Beyond these, we are developing a new launch vehicle to put small satellites to space.

We want to hand over its technology and production to industry right from the beginning after doing one or two technology demonstration flights. We will do this through [ISRO's business entity] Antrix Corporation.

When will public services based on the Indian regional navigation constellation NaVIC begin?

This is an area of priority for me — to make micro and miniaturised NaVIC receivers and see that they get into our mobile phones. I am very clear about it — that any mobile without NaVIC receivers will not be allowed to be sold. How we can cajole industry to do this will take time.

How is NaVIC itself faring?

All three atomic clocks on one of its satellites, IRNSS-1A, are said to have failed. Its replacement satellite IRNSS-1H was lost at launch last August.

For NaVIC's functions, four satellites are enough to get data.

Beyond four, the accuracy of giving location on ground beyond 20 metres will increase. We did want to put the replacement satellite but the loss of 1H is in no way affecting NaVIC's performance.

Which are some of the new areas of focus for ISRO?

We should aim for reducing the total mission cost. The satellite cost should be less, so also the cost of the launch vehicle. This will be possible when both are smaller than now. A promising technology in this area is the EPS or electric propulsion system on satellites. By bringing this in, the satellite's size will automatically come down. A four-tonne spacecraft, for example, can do the work of a six-tonne satellite [as less fuel will be carried to space.] The launcher can also be smaller and automatically the mission cost can come down.

But we don't get anything without a price. In EPS we lose something: we have to wait for 6-12 months for the spacecraft to slowly reach its destination because the thrust level is low. The vehicle injects the satellite in a GTO [a temporary geostationary transfer orbit.] For the satellite to move from there to the final orbit, the

increase in the orbit size will be very, very slow. Because the thrust level will be a maximum of about 300 milli Newtons. The satellite's service life is cut short.

See the difference with chemical propulsion that we now use —it gives us a 440-Newton thrust. The satellite can move from there to the final home within a few days.

But there are ways to beat this. The Liquid Propulsion Systems Centre is trying to improve the thrust or muscle power that we get from the EPS. We are also developing the technologies for a future reusable launch vehicle.

We should also think of innovative applications. We are trying to synergise the inputs of all 43 satellites.

We are pushing hard in the applications area. Recently we validated a new mobile app to help fishermen. It tells them where they can find large fish shoals in the sea. It has become very popular and we have to now ensure that our industry produces them in good numbers.

The draft Space law will be taken up further. We hope to have it this year.

In last year's Budget, the Department of Space was allocated ₹9,903 crore. What kind of resources would be needed for future missions?

[Smiles] We never had any problem with budgetary outlays! The problem is more in executing [using] it. But definitely [we can do with] more. More satellites are required to be put in orbit and they need more launch vehicles. We also need more facilities to make them. So it means that much more money is needed on the launch vehicle side, spacecraft side and on the infrastructure side. A bigger vehicle needs more hardware, which comes to nearly 85% of the cost. We also have to bring the production of launch vehicles to industry — and it needs extra money.

Of course, all this is projected to the government.

Would you look at a third launch pad at your Sriharikota launch centre to increase the pace of launches?

No, we are not talking of a third launch pad now. Instead we are augmenting the FLP [or LP1, the first launch pad, built in the 1990s] with a separate structure. Once you integrate a launch vehicle in one facility or launch pad, that facility will get locked for 45-60 days. The system is destroyed after every launch and it has to be refurbished each time. In this situation, even if we do continuous launches, we can do only six a year. But with multiple systems, we can be always ready to put launch vehicles together.

The capacity of the propellant plant should also be increased.

MAIL TODAY

Mon, 05 Feb, 2018

Russia bolsters its arsenal with stealth nuke torpedo

Can carry bomb 1,000 times more powerful than Hiroshima one

Russia is building a nuclear torpedo that can travel thousands of miles underwater to destroy coastal cities, according to a new Defense Department report.

The weapon, called Status-6 Oceanic Multipurpose System, can deliver a thermonuclear bomb 1,000 times as powerful as the one used to destroy Hiroshima. The robotic torpedo would be released from a submarine and travel through water at 110mph at depths that make it immune to anti-missile defense systems. It is described in the report as 'a new intercontinental, nuclear-armed, nuclear-powered, undersea autonomous torpedo.' Russian specialist Edward Geist, who studied the weapon, said: "The radius of total or neartotal destruction is the size of a pretty large metropolitan area. It's difficult to imagine in normal terms."

The weapon was first seen in 2015 when Russia state television showed Vladimir Putin looking at a drawing of the system. Arms control expert Pavel Podvig said the weapon would be used as a 'last resort' by Russia if it was attacked by the US. He added: "The detonation would cause a very large amount of radioactive fallout." In response to Russia's building project, the United States will expand its nuclear capabilities, the policy document released on Friday said. Some critics say the move could increase the risk of miscalculation between the two countries. It represents the latest sign of hardening resolve by President Donald Trump's administration to address challenges from Russia, at the same time he is pushing for improved ties with Moscow to rein in a nuclear North Korea.

The focus on Russia is in line with the Pentagon shifting priorities from the fight against Islamist militants to 'great power competition' with Moscow and Beijing "Our strategy will ensure Russia understands that any use of nuclear weapons, however limited, is unacceptable," the document, known as the Nuclear Posture Review, said. The rationale for building up new nuclear capabilities, US officials said, is that Russia currently perceives the United States' nuclear posture and capabilities as inadequate. By expanding its own low-yield nuclear capability, the United States would deter Russia from using nuclear weapons, US officials argue. Low-yield nuclear weapons, while still devastating, have a strength of less than 20 kilotons. The atomic bomb dropped on Hiroshima had about the same explosive power.

The argument for these weapons is that larger nuclear bombs are so catastrophic that they would never be used and do not work as an effective deterrent. With less power and destruction, the low-yield option would potentially be more likely to be used, serving as an effective deterrent. The Pentagon document, which is largely in line with the previous review in 2010, said the United States will modify a small number of submarine-launched ballistic missile warheads with low-yield options. In the long term, the US military will also develop a new nucleararmed sea-launched cruise missile. The missile could have the less powerful option, but a decision has not been made, and will take up to a decade to develop, officials said.

Greg Weaver, deputy director of strategic capabilities at the Pentagon, said the United States would be willing to limit developing the missile if Russia would 'redress the imbalance in non-strategic nuclear forces. Weaver said the most difficult task for those working on the review was trying to address the gap between Russian and American non-strategic nuclear weapons. Russia has a stockpile of 2,000 nonstrategic nuclear weapons, according to the Pentagon. Reuters

The Statesman
PEOPLE'S PARLIAMENT, ALWAYS IN SESSION

Mon, 05 Feb, 2018

China asks US to shun cold-war mentality

Asking the US to discard its "cold-war mentality" and take a fair view on China's military development, Beijing today criticised a Pentagon report that cast the Communist giant as "a major challenge" to America's interests in Asia. The Pentagon on Friday released the Nuclear Posture Review (NPR) in which it said that the US wants to prevent China from mistakenly concluding that any use of nuclear weapons, however limited, is acceptable. China said that it is "firmly opposed" to the NPR published by the US Department of Defence.

The 74-page report, the Pentagon's first since 2010, cast China as "a major challenge to US interests in Asia". China's Defence Ministry spokesman Ren Guoqiang said that the US document presumptuously speculated about the intentions behind China's development and played up the threat of China's nuclear strength. "We hope the US side will discard its 'cold-war mentality', shoulder its own special and primary responsibility for nuclear disarmament, understand correctly China's strategic intentions and take a fair view on China's national defence and military development," he said.

The report said the US strategy for China is designed to "prevent Beijing from mistakenly concluding that it could secure an advantage through the limited use of its theatre nuclear capabilities or that any use of

nuclear weapons, however limited, is acceptable". China will resolutely stick to peaceful development and pursue a national defence policy that is defencive in nature, Ren said.

"China has adhered to the policy of no-first-use of nuclear weapons at any time and under any circumstances," he said, adding that under no circumstances will China use or threaten to use nuclear weapons against non-nuclear-weapon states or nuclear-weapon-free zones. China has always exercised utmost restraint in the development of nuclear weapons and limited its nuclear capabilities to the minimum level required for national security, the defence ministry spokesman said.

The US, which possesses the world's largest nuclear weapons arsenal, should conform to the irreversible world trend of peace and development rather than run in the opposite direction, state-run Xinhua news agency quoted Ren as saying.

The Statesman
PEOPLE'S PARLIAMENT, ALWAYS IN SESSION

Mon, 05 Feb, 2018

Iran says US nuclear policy brings world 'closer to annihilation'

The United States' new nuclear policy brings humanity "closer to annihilation", Iran's Foreign Minister Mohammad Javad Zarif has said. His comments yesterday came a day after the Pentagon revealed plans to revamp its nuclear arsenal, largely in response to a perceived renewed threat from Russia. Zarif said the new policy was "in violation" of the international Nuclear Non-Proliferation Treaty (NPT).

"The US Nuclear Posture Review reflects greater reliance on nukes in violation of the #NPT, bringing humankind closer to annihilation," Zarif said on Twitter. Zarif said the same impulse was driving the United States to undermine the 2015 nuclear deal with Iran, which President Donald Trump has demanded be renegotiated. "Trump's obduracy in killing the JCPOA stems from the same dangerous imprudence," Zarif wrote. The latest Nuclear Posture Review published by the Pentagon called for a larger arsenal of smaller, low-yield nuclear weapons to act as a more "credible" deterrent to threats, particularly from Russia.

The NPT, which came into force in 1970 and has been signed by almost all countries including the US, calls on nations "to achieve at the earliest possible date the cessation of the nuclear arms race and to undertake measures in the direction of nuclear disarmament". Iran's nuclear deal, lifted some international sanctions in exchange for curbs to its nuclear programme. Trump has consistently attacked the accord and said in January he would not continue to waive sanctions unless new restrictions were placed on Iran's missile programme.