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Defence manufacturing rules eased

Licensing process made simpler for private industry to build a range of equipment



Different bracket: Items are listed in 3 categories- defence aircraft, warship of all kinds and allied items of defence equipment. The government issued a notification last week simplifying the process for approval of manufacturing of a range of defence and aerospace equipment and components by private industry, by bringing them under the licensing authority of the Department of Industrial Policy and Promotion (DIPP).

The notification was issued as a press note dated January 1 by the DIPP, which is under the Ministry of Commerce and Industry.

Warships included

Items are listed in three categories — defence aircraft, warships of all kinds, and allied items of defence equipment. The most significant aspect is that warships of all kinds, surface and sub-surface, have been included in the listing. “With the list of defence items requiring industrial licences being pruned down by removing the requirement of licensing for ‘parts and components of the equipment’, this would accrue benefits towards Tier-I/Tier-II vendors giving a boost to the small and medium enterprises (SMEs),” industry body Associated Chambers of Commerce and Industry of India (ASSOCHAM) said in a statement.

This notification, which supersedes DIPP’s earlier press note of June 2014 on this issue, segregates defence items in two categories covered by two different Acts — the Industries (Development and Regulation) Act, 1951, and the Arms Act, 1959.

Foreign manufacturers

This move is also expected to help foreign Original Equipment Manufacturers (OEM) looking for partnerships with the private sector. The Defence Ministry has formulated an ambitious Strategic Partnership (SP) model under the Defence Procurement Procedure (DPP), covering four specific areas to promote role of private sector in defence manufacturing. However, progress on finalising the projects under the SP model has been slow.

The ASSOCHAM statement said the creation of a strong supply chain is critical.

THE ASIAN AGE

Mon 7th January 2019

It’s Mission 2021, says ISRO chief

Rocketry is the forte of **Dr K. Sivan**, Chairman, ISRO, but this expertise has evidently rubbed off on his style of functioning as he rives his colleagues to launch three Indians into space eight months ahead of the schedule of August 2022 announced by Prime Minister Narendra Modi. He has knit up many teams to

accomplish this high profile mission, (Gaganyaan), and one of these teams, has been working till the early hours every day to complete a review of the design of the crew module and systems by January 15. Excerpts:

What's at the top of your to-do list as the Union cabinet has approved Rs 10,000 crores for 'Gaganyaan' human space flight programme?

At our headquarters, we have put together 24 scientists and engineers drawn from all facilities of ISRO to review the design and systems of the crew module which will transport three Indians to outer space. The crew module will be designed for a three-member crew but we don't know how many members will ride into outer space on D-day. This team will complete the design review by January 15, and then commence integration of all systems. We plan to fly the crew by December 2021, eight months ahead of the schedule announced by the Prime Minister. And to make sure that everything goes off without a glitch, we have planned two unmanned flights (empty crew capsule), one in December 2020, and the second in July 2021.

The earlier estimate for the human space flight programme was Rs 14,000 crores, so how will ISRO manage to accomplish this mission with a leaner budget?

We can do it with Rs 10,000 crores as we realized that establishment of some facilities could be avoided, and thus brought down the cost of the mission. We have completed many tests before a formal announcement of the mission as the government has been releasing funds as part of our annual budget in recent years.

Will ISRO turn to the IAF or other space faring nations for selection and training of the crew members?

This decision will take some time, but yes, we will take their help at an appropriate time. France and Russia are among the countries which have offered to help train our crew.

Will a woman make it to the first flight to outer space from Indian soil?

We want to include women in the list of crew members but this is certainly not in our hands because the selection and training procedures will be extremely rigorous. So a call will be taken just before the flight about the composition of the crew. We will design the crew module for three members but at this point in time, I cannot tell you if two Indians will make it on the first flight, or a three member crew will board 'Gaganyaan' in December 2021.

What type of experiments will be carried out by the crew during their journey in space?

We have already received 40 proposals from several R&D institutions on the type of experiments which could be conducted by the crew members. Our experts will evaluate these proposals and pick the most interesting experiments possible in micro gravity.

ISRO is attempting a human space flight mission many years after China's successful journey into outer space?

That's ok. We are not in a race with China. Our focus is to provide good communication, broadcasting a weather forecasting facilities in the country. We were also successful with our missions to the Moon and Mars. This year, we have planned 32 missions, including our second probe to the Moon, Chandrayaan-II, and will work for the success of each of these programmes.

THE ASIAN AGE

Mon, 7th January 2019

Mission 2022: Gaganyaan Time to claim India's space



Gaganyaan' will be smaller in size (3M×2.70M in diameter) when compared with the Russian Soyuz capsule (7.2M×2.7M in diameter), Chinese Shenzhou (9.25M×2.8M in diameter) and NASA's proposed Orion spacecraft (3.3M×5M).

One giant leap for India... As the country's space agency ISRO gears up to launch three Indians into outer space, months ahead of the planned Gaganyaan 2022, the crucial question is, will ISRO be able to accomplish this seven-day mission successfully. B.R. Srikanth reports on the technological challenges in ISRO's path ahead of this momentous flight that will finally put India on par with arch-rival China. At least, in space.

The countdown to the famed "That's one small step for a man, one giant leap for mankind" moment, savoured by legendary astronaut Neil Armstrong five decades ago, has commenced for Indian space scientists.

It's not as though any one of these self-effacing scientists will set foot on the Moon as yet, but 'Gaganyaan,' or sky craft in Sanskrit, that is being designed by them will send three Indians into outer space in a game-changing moment-technologically and geo-politically-for the country in December 2021 - eight months ahead of Gaganyaan 2022. And such an entry into the 'Big Boys' league by reaching a goalpost which has remained distant, will be an incredible turning point in history, given the fact that the country is set to emerge as the third largest economic power in the world, and therefore ready to collaborate with top space-faring nations to explore Moon, Mars and other heavenly bodies, both for science, and for establishment of human colonies.

"This is the most important step of our agenda as we begin to think long term about deep space exploration and sustenance of life on other planets or establishment of a laboratory on the Moon. It will help us in evaluation of our technological expertise to embark on more ambitious programmes after establishing our proficiency in making state-of-the-art satellites and heavy lift rockets," says Dr K. Kasturirangan, former Chairman, ISRO.

Preparations for the human space flight programme commenced a decade ago when Chairman G Madhavan Nair secured approvals of the Space Commission and the Planning Commission but the project slipped into a limbo as general elections were announced in 2009, and the Union cabinet could not take a call on this historic trip into outer space-by Indians onboard an indigenous spacecraft launched from Indian soil.

Last Independence Day, Prime Minister Narendra Modi announced the flight during his address to the nation, giving the project its much needed fillip and followed up with the cabinet's approval of Rs 10,000 crores budget on December 29, 2018, to build the infrastructure and train the crew.

Dr Nair is optimistic that a successful flight in December 2021 could well get ISRO's cash registers ringing with other space agencies lining up to fly their astronauts, just as they have been queuing up for the launch of satellites by PSLV (Polar Satellite Launch Vehicle).

"Today, only Russians offer commercial rides into space as NASA does not fly the space shuttles, and China does not offer commercial flights. So, a successful flight by an Indian crew will not tilt the scales in terms of technology and geo-politics, but ISRO can also generate significant additional revenue as other countries are likely to seek opportunities for commercial flights," says Dr Nair.

But the crucial question: Will ISRO be able to accomplish this mission and ensure a smooth return of the three-member crew after seven days in space? What are the technological challenges in ISRO's path ahead of this momentous flight? First, GSLV-III (Geo-synchronous Satellite Launch Vehicle-III), the rocket designed to transport the three-member crew to outer space in a crew module, must be 'human rated,' or declared absolutely safe for those chosen for the trip.

Second, the environmentally controlled cabin in which the crew will travel must have facilities to control the temperature and gases sans a single glitch.

Third, the crew must be trained well along with high endurance levels not only during the week-long stay in space but also while carrying out experiments which Indian scientists are likely to design.

Former chairman A S Kiran Kumar says some of these challenges have been addressed in various facilities of ISRO, adding "from now on you will see lots of action as all types of tests will be completed and all technologies will be in place before the date announced by the Prime Minister. GSLV-III will be flown with an empty crew capsule a couple of times before we declare the rocket fit for travel by humans," he explained.

This mission, however, will flout the agenda set by the late Dr Vikram Sarabhai, who, in the nascent years of the space programme, had announced: "There are some who question the relevance of space activities in a developing nation. To us, there is no ambiguity of purpose. We do not have the fantasy of competing with the economically advanced nations in the exploration of the Moon or the planets or manned space-flight."

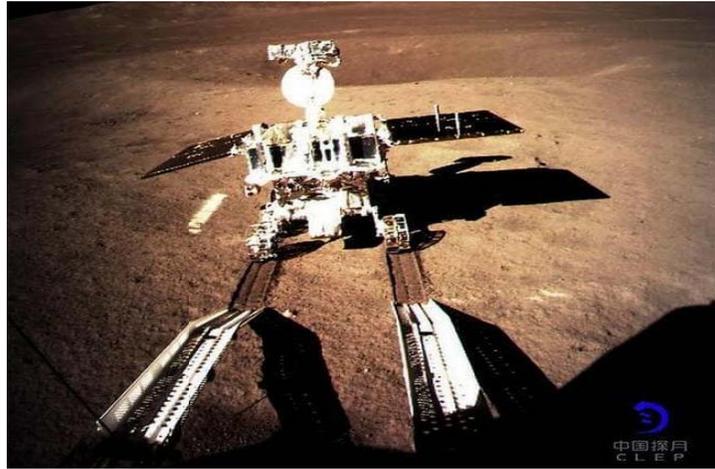
Dr Nair, however, explained that Dr Sarabhai's vision of passing on the benefits of space technology to the common man have been achieved with the launch of several multi-purpose satellites over the last five decades and ISRO should now embark on more ambitious missions like the human space flight programme. "Those days, ISRO's total budget was about Rs two or three crores, and even Rs 100 crores would have been impossible. For this first flight, the government has sanctioned Rs 10,000 crores which translates to a little over Rs 2,000 crores each year, which ISRO can afford to spend to gain expertise in a plethora of disciplines," added Dr Nair.

It's not just Dr Nair, Dr Kasturirangan and Mr Kiran Kumar but a host of other experts are certain that spin-offs of technologies developed for this outing in December 2021 will not only enrich the quality of research & development in ISRO laboratories or private industries but also spawn a host of new products which could be used in sectors as varied as communications, medicine, or even development of new class of materials as tough as nails but as light as a feather!

THE HINDU

Sat 5th Jan 2019

Lunar rover named as 'Yutu 2'



Safe landing: A robotic lunar rover on the 'dark side' of the moon, after making a historic landing on Thursday. It will carry out a string of experiments on the unexplored far side of the moon.

China has named the lunar rover, successfully deployed on Thursday to carry out a string of experiments on the far side of the moon, as 'Yutu-2'. The state-run Xinhua news agency reported that the Yutu-2 touched the lunar surface at 10:22 p.m. local time on Thursday, leaving a trace on the loose lunar soil. The rover's touchdown is part of China Chang'e-4 lunar probe.

Analysts say that China's lunar probe is part of its 'Made in China-2025' project, which focuses on advanced technology, including space applications.

Homegrown GPS

It follows the BeiDou Navigation Satellite System — China's homegrown Global Positioning System that started worldwide service last month. Next year China plans to launch its Mars explorer mission. In 2022, it hopes to complete its own Earth-orbiting space station.

Some observers say that China's advances can mutate into a Cold war-style competition in outer space with the United States.

Already China and the United States are roiled in a so-called trade war. U.S. administration officials are on record stating that there deep opposition to the 'Made-in-China 2025' project.

The Hong Kong based *South China Morning Post* quoted Chen Hongqiao, a researcher at Guangdong University of Foreign Studies in the southern city of Guangzhou, as telling that the landing could intensify the space race between China and the U.S. "Today the fight [between China and the U.S.] is on trade. Tomorrow it can be on the moon," he observed.

A military dimension?

According to the *Nikkei Asian Review*, after the latest launch, Beijing is moving forward with plans to build a research base on the moon. It is also said to be considering mining there for helium-3, a rare substance on earth that can be used as a fuel in nuclear fusion power generation. The publication added that the U.S. is growing increasingly alarmed because a more advanced Chinese space programme could be translated into military strength.

The rover has been programmed to launch ground penetration radar that would help map the moon's inner structures. It would also analyse soil and rock samples for minerals, apart from activating a radio telescope to search for possible signals from deep space.

The payload also carried a canister filled with air, soil, water, bacterium, silkworm eggs, the seeds of a small flowering plant and a potato, the *SCMP* reported. Scientists hope that the small eco-system will spring to life and produce the first blossoming flowers on the moon in about three months' time.

The China National Space Administration (CNSA) said the Chang'e-4 mission had "lifted the mysterious veil" from the far side of the moon, which is permanently blocked from view from earth, and "opened a new chapter in human lunar exploration".

THE TIMES OF INDIA

Sun 6th Jan 2019-01-07

6 Tech Advances to Restore the World



One of the greatest promises of technology is its potential to save time and make our lives better. Here are a slew of innovations in tech that are geared towards undoing the ill-effects of civilisation on air, water and space:

1. WasteShark

The WasteShark swims in to salvage our streams, lakes, and wetlands from trash, litter and garbage. It is a GPS-equipped aquadrone that can collect waste and swim for eight hours at a stretch. The Level-1 autonomous aquadrone has customisable sensors that can measure environmental data such as depth, pH balance, salinity and temperature of the water.

2. Remora

Ghost nets are among the greatest killers in our oceans today. Remora is an app and hardware system by designer Alejandro Plasencia that embraces the Internet of Things to tackle the ghost net phenomenon. The system notifies fishermen when a net is ripped, thanks to its RFID-enabled monitoring system.

3. Ocean Saviour

It's a pioneering project to make the world's first self-powered plastic-eating ship to locate, retrieve and recycle plastic from the ocean. Central to its design are collection systems at the side and front of the vessel which will deploy and draw in plastic. The plastic is then chopped finely, milled and heated to super-high temperatures to produce a low-polluting gas to drive the ship.

4. Bee2Bee, by Julian Schwarze

Amid growing concerns about the extinction of honeybees, designer Julian Schwarze's award-winning Bee2Bee concept offers a new way to stop the decline by reinventing the beehive as a sustainable digital ecosystem. Bee2Bee is a mobile and quick-to-assemble culture system for bees. By digitally monitoring the hives, the system simplifies the medical treatment and care of the insects.

5. Astroscale

Astroscale is one of the few companies in the business of orbital debris mitigation through End of Life (EOL) and Active Debris Removal (ADR) services. The start-up offers technical solutions and business cases

for the service while working with space agencies. The first (ELSA-d) demonstration mission — scheduled to launch in early 2020 — consists of two spacecrafts, a ‘chaser’ and a ‘target’ stacked together. The chaser will release and capture the target in a series of demonstrations proving the capability to find and capture orbital debris.

The End-of-Life Service by Astroscale demonstration (ELSA-d) is the first mission to showcase the core technologies necessary for debris capture and removal

6. Wysa

It is an app-based virtual coach in the form of a cartoon penguin that helps alleviate your anxiety and listless mood. The ‘emotionally intelligent’ bot responds to the emotions you express and uses evidence-based cognitivebehavioural techniques, breathing, yoga, motivational interviewing and micro-actions to help you build mental resilience skills.



Mon 7th Jan 2019

French Navy Chief begins four-day India visit

Navy Chief Admiral Sunil Lanba will hold extensive talks with his French counterpart Admiral Christophe Prazuck on Monday to explore ways to further deepen operational cooperation between the two navies.

The chief of the French Navy is visiting India from January 6-9 with an aim to consolidate bilateral naval relations between the two countries, Navy spokesperson Capt DK Sharma said. Both sides will also explore new avenues for cooperation including on the operation front, said another official.