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S-400 delivery on track, India makes \$850mn payment

Missile defence 15% paid to Russia while avoiding US sanctions

By Rezaul H Laskar

NEW DELHI: The timeframe for the supply of S-400 missile defence systems by Russia to India remains on track with the latter having made the first payment of \$850 million for the big-ticket defence deal worth more than \$5 billion, people familiar with developments said on condition of anonymity.

The payment, amounting to about 15% of the total deal, was made in September though a special mechanism worked out by the two sides to avert attracting sanctions under the Countering America's Adversaries Through Sanctions Act (CAATSA) of the US, the people cited above added.

The people declined to go into details of the mechanism, given the sensitivity of the issues involved.

Over the past few months, India and Russia focused on alternative payment mechanisms to overcome the impact of potential US sanctions, including trade through a rupee-rouble mechanism (in which payments are made in rupees and roubles) or payments in euros for military hardware.

"There had been some concerns about the delivery schedule for all the five systems being

delayed to 2025. But with the payment having been made, the first system is expected to be delivered in 16 to 18 months," said one of the people cited in the first instance.

India and Russia had signed a deal worth an estimated \$5.4-billion for five S-400 systems during the annual summit of leaders of the two countries in October last year. Russian officials said then that the first system was expected to be delivered by 2020 and that all deliveries would be completed in a five-year period.

Washington has repeatedly pressured New Delhi not to go ahead with the S-400 deal or other purchases of military hardware from Russia, which continues to account for about 60% of India's military hardware. US officials have also expressed concern the S-400 could capture electronic signatures of American-origin military equipment and aerial platforms used by India and compromise them.

However, following a meeting with US secretary of state Mike Pompeo in October, external affairs minister S Jaishankar defended India's "sovereign right" to buy weapons and said the country won't be told by any state to not buy military hardware from Russia. Indian officials have also said the country meets the criteria for a waiver from US sanctions on the S-400 deal and that New Delhi can't "wish away" its long-standing defence ties with Moscow.

The US has also pressured Turkey to scrap a deal for S-400 systems, with President Donald Trump saying after a meeting with his Turkish counterpart Recep Tayyip Erdogan on Wednesday that the acquisition of such sophisticated weapons "creates some very serious challenges for us". The S-400 issue prompted the US to eject Turkey from the F-35 joint strike fighter programme.

In a recent letter to Erdogan, Trump warned he would have to impose sanctions on Turkey over the purchase of the S-400 systems.

When Roman Babushkin, the deputy chief of the Russian mission in New Delhi, was asked during an interaction on Tuesday if Trump's threat could have implications for India, he replied: "Turkey is a clear demonstration that national interests are more important than satisfying the interests of some other countries. This is the case for India as well."

In an apparent reference to efforts to overcome potential US sanctions, Babushkin added, "India needs the best air defence system and Russia will provide it. It depends on bilateral interests and we need to be safe from outside pressure. We are working with India on that."

चंद्रयान 3: चांद पर लैंडिंग के लिए फिर से तैयार इसरो

नई दिल्ली, (एजेंसी): भारत के ऐतिहासिक चंद्र मिशन के बारे में किसे नहीं पता होगा। मालूम हो कि 22 जुलाई 2019 को लॉन्च किए गए चंद्रयान-2 मिशन के तहत भारत को चांद की दक्षिणी सतह पर लैंडर विक्रम की सॉफ्ट लैंडिंग करानी थी। हालांकि, अंतिम क्षणों में लैंडर की रफ्तार नियंत्रित न हो पाने के कारण वह रास्ता भटक गया और चांद पर सॉफ्ट लैंडिंग की जगह उसकी हार्ड लैंडिंग हुई। वह भी अपने निर्धारित स्थान से करीब 600 मीटर दूर। इसके बाद लैंडर से न तो संपर्क स्थापित किया जा सका और न ही उसने वहां कुछ काम किया। बहरहाल अब इसे लेकर दुखी होने की जरूरत नहीं है, बल्कि फिर से दोबारा मेहनत करने का सोचा है भारतीय अंतरिक्ष अनुसंधान संगठन ने। सूत्रों का कहना है कि इसरो अब जल्द चंद्रयान 3 को चंद्रमा की तरफ रवाना कर सकता है।

चंद्रयान 2 ने चंद्रमा की सतह से भेजी 3डी तस्वीर

सितंबर में चांद की कक्षा पर कदम रखने से महज कुछ मिनट की दूरी पर विक्रम लैंडर के संपर्क टूटने के बाद से ऑर्बिटर लगातार चांद के चक्कर लगा रहा है। ऑर्बिटर में मौजूद पेलोडस इसरो को चांद के सतह की तस्वीरें भेज रहा है, ताकि चांद के वातावरण का अध्ययन किया जा सके। चंद्रयान-2 के ऑर्बिटर ने नई 3डी तस्वीर भेजी है। इस बात की जानकारी इसरो ने अपने आधिकारिक ट्विटर हैंडल के जरिए दी है। ऑर्बिटर ने चांद की सतह पर से इस 3डी तस्वीर को क्लिक किया है जिसे टैरेन मैपिंग कैमरा 2 के जरिए क्लिक किया गया है।



लैंडर और रोवर शामिल किया जाएगा

सूत्रों का कहना है कि इसरो द्वारा चंद्रयान 3 को चंद्रमा पर भेजने की समयसीमा नवंबर 2020 तय की गई है। इसके लिए इसरो ने कई समितियां भी बनाई हैं। इसरो ने कई समितियों, जिनमें एक समग्र पैनल और तीन उप-समितियों का गठन किया है। वहीं, इसे लेकर अक्टूबर से कम से कम चार उच्च-स्तरीय बैठकें आयोजित की जा चुकी हैं। बताया गया कि चंद्रयान 3 मिशन में केवल लैंडर और रोवर शामिल किया जाएगा, क्योंकि चंद्रयान-2 का ऑर्बिटर अब भी अच्छे से काम कर रहा है।

Chandrayaan-3: 2nd bid to land on Moon by next Nov

BENGALURU, NOVEMBER 14

After an unsuccessful bid two months ago, India may attempt another soft landing on the Moon by next year-end, probably in November, sources in the Indian Space Research Organisation (ISRO) said on Thursday.

The organisation had constituted a high-level committee, headed by S Somanath, Director of Thiruvananthapuram-based Vikram Sarabhai Space Centre, the lead centre responsible for all launch vehicle programmes of ISRO, to prepare a report on the proposed Chandrayaan-3.

“Rover, lander and landing operations will get more focus this time and whatever deficiencies there were in the Chandrayaan-2 mission will be corrected. ISRO sources

“The report is awaited. The committee has been given guidelines to prepare the mission before the end of next year,” said a senior ISRO official. “There is a good launch window in November,” he said.

“Rover, lander and landing operations will get more focus this time and whatever deficiencies there were in the Chandrayaan-2 mission will be corrected,” sources in ISRO said.

On September 7, ISRO attempted a soft landing of Chandrayaan-2’s ‘Vikram’ on the lunar south pole, before losing communication with the lander. A national-level committee has analysed the cause of communication loss with the lander. — PTI

Gaganyaan: 7 of 12 potential astronauts finish screening

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Bengaluru: Two batches of test pilots selected as potential astronauts for Gaganyaan — a total of seven men — have completed screening in Russia for India's first manned space mission.

A final batch of five men will leave for Russia this weekend, sources told **TOI**.

In the first week of September, India picked 12 test pilots who cleared level-1 screening for the Gaganyaan programme that envisages Indian astronauts in space by 2022. India will select the final crew members, likely two or three, from these 12.

“Since Russia could not accommodate all 12 at one go, we sent four in one batch and three in a second. The last five will leave either on Friday or Saturday,” a source said.

The Institute of Aerospace Medicine (IAM), which selected the 12 astronauts from 60 applicants, completed one round of screening, and Glavkosmos — a subsidiary of Russian space agency Roscosmos State Corporation — are in the process of screening these astronauts.

Full report on www.toi.in

मिशन 'गगनयान' के लिए पहले स्टेज में 12 चुने गए

■ भाषा, बेंगलुरु : भारत के अंतरिक्ष में पहले मानव मिशन 'गगनयान' के लिए 12 संभावित यात्रियों को चुना गया है। वायुसेना के चिकित्सा सेवा के महानिदेशक एयर मार्शल एमएस बुटोला ने बताया, 'गगन यात्रियों के चयन का पहला चरण पूरा हो गया है और संभावित अंतरिक्ष यात्रा के लिए वायुसेना के चुने गए कुछ चालक दल सदस्यों का रूस में प्रशिक्षण पूरा हो गया है।' वायुसेना प्रमुख एयर चीफ मार्शल आरकेएस भदौरिया ने गुरुवार को कहा कि इसरो की ओर से प्रस्तावित पहले मानव मिशन 'गगनयान' के लिए अंतरिक्ष यात्रियों का चुनाव पेशेवर तरीके से किया जा रहा है। बढ़ते संवाद से चयन प्रक्रिया के प्रति समझ बढ़ी है।



China tests Mars lander in global support push

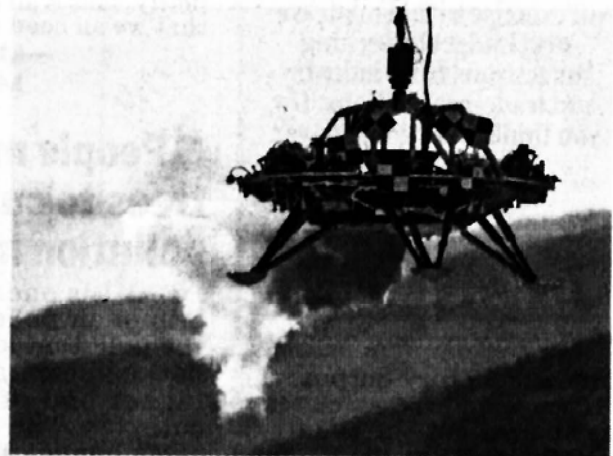
CHINA invited observers to a successful test Thursday of its Mars lander as the country pushes for inclusion in more global space projects.

The demonstration of hovering, obstacle avoidance and deceleration capabilities was conducted at a site outside Beijing simulating conditions on the Red Planet, where the pull of gravity is about one-third that of Earth.

China plans to launch a lander and rover to Mars next year to explore parts of the planet in detail. China's burgeoning space program achieved a lunar milestone earlier this year by landing a probe on the mysterious far side of the moon.

It has developed rapidly, especially since it conducted its first crewed mission in 2003 and has

A lander is lifted during the test in Huailai on Thursday



sought cooperation with space agencies from Europe and elsewhere.

The US, however, has banned most space cooperation with China out of national security concerns, keeping China from participating in the International Space Station.

Despite that, China's ambitions continue to grow as it seeks to rival the US, Russia and Europe in space and cement its position as a regional and global power. It is gradually constructing

its own larger, more permanent space station in which it has invited foreign participation.

The lander on Thursday successfully avoided ground obstacles during a simulated low-gravity descent. The refrigerator-sized craft was lowered gently on 36 cables through the air for about a minute and used onboard jets spraying rust-colored fumes to alter its downward course. After the probe is launched, it will take about seven months to reach Mars, and the final procedure of landing will only last about seven minutes. — AP

China landed a probe on the far side of the moon earlier this year.

पहले मंगल मिशन को चीन ने सफलतापूर्वक किया लैंडिंग परीक्षण

हुएलाई, रायटर : चीन मंगल मिशन को लेकर बेहद गंभीर है। चीन ने गुरुवार को अपने मंगल मिशन के लिए लैंडर का उत्तरी हेबेई प्रांत में सफलतापूर्वक लैंडिंग परीक्षण किया। चीन राष्ट्रीय अंतरिक्ष प्रशासन (सीएनएसए) के प्रमुख जैंग केजान ने परीक्षण से पहले विदेशी राजनयिकों और मीडिया से बातचीत में कहा कि चीन मंगल मिशन को लेकर सही दिशा में है। चीन का यह मंगल अभियान 2020 में होगा। मंगल पर उतरने वाले लैंडर को बीजिंग के उत्तर पश्चिम में हुएलाई स्थान पर परीक्षण से गुजारा गया। जैंग के मुताबिक 2016 में चीन ने औपचारिक रूप से मंगल मिशन को लेकर काम शुरू किया था। मिशन मंगल में लैंडर की लैंडिंग काफी मुश्किल भरा हिस्सा होता है। चीन ने लांग मार्च 5 रॉकेट विकसित किया है जो सात महीने की यात्रा के बाद लैंडर को मंगल पर पहुंचाएगा।