

Chandrayaan-3 integrated with launch vehicle LVM3

Launch window is between July 12 and 19 and the orbital raising will take place soon after launch; the lander and orbiter will orbit the moon before touching down on the lunar surface

The Hindu Bureau
BENGALURU

The Indian Space Research Organisation (ISRO), which is planning to launch the Chandrayaan-3 moon mission in July, integrated the spacecraft with the Launch Vehicle Mark-III (LVM3) on Wednesday.

The space agency tweeted: "Today, at Satish Dhawan Space Centre, Sriharikota, the encapsulated assembly containing Chandrayaan-3 is mated with LVM3."

The ISRO is yet to announce the date of the launch. However, the launch window is between July 12 and 19. ISRO Chairman S. Somanath said that the space agency would pick the earliest possible date.

Chandrayaan-3, India's third moon mission, follows Chandrayaan-2, to demonstrate end-to-end capability in safe landing and roving on the lunar surface. It consists of an indigenous lander module (LM), a propulsion module

(PM), and a rover with an objective of developing and demonstrating new technologies required for inter-planetary missions.

According to the ISRO, the lander has the capability to soft land at a specified lunar site, and deploy the rover, which will carry out in-situ chemical analysis of the lunar surface during the course of its mobility. The lander and the rover have scientific payloads. The main function of the PM is to carry the LM from launch vehicle injection till final lunar 100-km circular polar orbit, and separate the LM from the PM. The PM also has one scientific payload, which will be operated post-separation of the LM.

After its launch in mid-July, the orbital raising will take place. The lander and orbiter will orbit the moon before touching down on the moon. Mr. Somanath had said that the ISRO has added more fuel to the lander. Chandrayaan-3 will be going on the same path as its predecessor and will be landing on the same site.



Ready to fly: The ISRO on Wednesday integrated the Chandrayaan-3 spacecraft with Launch Vehicle Mark-III at the Satish Dhawan Space Centre in Sriharikota. SPECIAL ARRANGEMENT

HC not empowered to issue a direction for invocation of Article 355, say judges

They dismiss a petition which claimed that the constitutional machinery had failed due to attack on I-T officials during a raid at the residence of Senthilbalaji's brother

The Hindu Bureau
CHENNAI

A High Court, under Article 226 (its writ jurisdiction) of the Constitution, does not have the power to issue a direction to the Centre to invoke Article 355 which enjoins upon the Centre a duty to protect States against external aggression and internal disturbance besides ensuring that the government of every State is carried on in accordance with the constitutional provisions.

Madras High Court Chief Justice S.V. Gangapurwala and Justice P.D. Audikesavalu passed the ruling while dismissing a writ petition which claimed that the constitutional machinery had broken down due to the attack on Income Tax officials by a mob when they attempted to search the residence of Minister V.



Article 355 enjoins upon the Centre a duty to protect States against external aggression and internal disturbance.

Senthilbalaji's brother V. Ashok Kumar in Karur. The litigant, R. Varaaki, had accused the State police of having failed to protect the officials.

The judges said Article 355 of the Constitution appeared to have been inspired both by Article IV(4) of the U.S. Constitution and Section 61 of the Australian Constitution Act, which empower the federal govern-

ment to "maintain" the Constitution.

While introducing it, the underlying principle and purpose were explained by B.R. Ambedkar, who pointed out that if the Centre was to interfere in the administration of provincial affairs, it must be, by and under a constitutional obligation.

Further, referring to various judicial pronouncements dealing with Articles 355 and 356 of the Constitution, the court said the Sarkaria Commission Report too had explained that a whole range of actions on the part of the Centre was possible under Article 355.

"If the facts put forth by the petitioner are considered as they are, then the incident of I-T officials being mobbed during the arrest of one Minister would not be tantamount to an internal disturbance within the purview of Article 355," the Chief Justice said.

Diminishing returns

India benefited as a member of the SCO,
but the future is not bright

The Shanghai Cooperation Organisation-Council of Heads of State meeting, hosted by Prime Minister Narendra Modi on Tuesday, marked the first time India chaired the summit of regional countries. India became a full SCO member in 2017, along with Pakistan. The government has held that joining the originally Eurasian group was important as member-countries make up a third of the global GDP, a fifth of global trade, a fifth of global oil reserves and about 44% of natural gas reserves. Also important is its focus on regional security and connectivity – areas key to India's growth and making up its challenges, such as terrorism in Pakistan, and Chinese aggressions as well as the Belt and Road Initiative. Being "inside the tent" is important, especially as Pakistan is a member, even if that means conducting joint exercises under the SCO Regional Anti-Terrorist Structure. The SCO also gives India an interface with Central Asian markets and resources. Finally, joining the SCO was a key part of India's stated ambitions on "multi-alignment" and "strategic autonomy" while becoming a "balancing power" in the world, and it seems no coincidence that the Modi government joined the revived Quad with the U.S., Japan and Australia in the same year that it took up the full SCO membership. Over the past year, this has become an economic necessity as India has chosen to be neutral on the Ukraine war, benefiting from fuel and fertilizer purchases from Russia.

Therefore, it was expected that India's turn to chair the SCO this year would be a major event, rivalling the expected pomp around the G-20 meet in September. In addition, given Russia's and China's blocks on the G-20 joint communiqué that India is keen to find consensus on, the SCO summit would have been a convenient venue for Mr. Modi to negotiate a resolution with his counterparts. However, India's decision to postpone the SCO summit due to the Prime Minister's U.S. State visit, and then to turn it into a virtual summit may have been a dampener on the SCO outcomes. India's concerns with hosting Xi Jinping given the LAC hostilities, or Pakistan Prime Minister Sharif's possible 'grandstanding', or even the optics of welcoming Russian President Vladimir Putin may have been factors. Whatever the reason, while the members hammered out a New Delhi declaration and joint statements on radicalisation and digital transformation, the government was unable to forge consensus on other agreements including one on making English a formal SCO language, while India, despite being Chair, did not endorse a road map on economic cooperation, presumably due to concerns over China's imprint. With its SCO chairpersonship ending, the government may now be feeling the law of diminishing returns over its SCO engagement – one that might make its task of hosting the G-20 even more difficult.

Cabinet gives nod to Data Protection Bill

Legislation will be introduced in Parliament in the Monsoon Session; it specifies norms on management of personal data of Indian residents; activists have raised concerns on an amendment to the RTI Act, 2005 that would prohibit government departments from sharing personal information

The Hindu Bureau
NEW DELHI

The Union Cabinet on Wednesday cleared the Digital Personal Data Protection (DPDP) Bill, a senior government official said. The clearance paves the way for the Bill to be introduced in Parliament in the Monsoon Session, scheduled to begin on July 20.

Along with the data protection Bill, the Union government may also table the Indian Telecommunications Bill, a draft of which was circulated for public consultation last year. The telecom Bill will overhaul the Telegraph Act, which is the legal framework for telecom firms and Internet service providers.

The data protection legislation specifies norms on management of personal data of Indian residents and requires explicit consent from people whose data is collected and used.

The official said that over 20,000 comments were received on the draft Bill though these would not be put out in the public do-

main. He said there was not much difference between the draft Bill that was circulated for public consultation and the final Bill, which would be tabled in Parliament. The government has refused to provide copies of comments from industry, civil society, and government bodies on the Bills in response to Right to Information (RTI) queries.

The Bill essentially allows laypersons to complain to a Data Protection Board, consisting of technical experts, constituted by the government, if they have reason to believe that their personal data has been used without their consent (for example, mobile phone numbers or Aadhaar details). "The Board will institute an investigation into the breach," the official said.

It is not clear what changes, if any, have been made to the DPDP and telecom Bills following the consultation processes. Electronics and Information Technology Minister Ashwini Vaishnaw said in May that the telecom industry had held extensive



Safety net: The Bill outlines practices for entities on how personal data should be stored and processed to ensure there is no breach.

meetings with the Union government after the draft was released in November.

The DPDP Bill also outlines practices for entities that collect personal data on how that data should be stored and processed to ensure there is no breach, as well as rights of persons whose data is being used.

EU law

The Bill draws from an EU law – The General Data Protection Regulation – and benchmarks 23 instances in which taking consent for recording data is not possible. "These are special circumstances like golden hour during an accident or natural disasters and so on," the official said.

The official said that the Bill has a clause for offering voluntary undertaking in case an entity wants to admit that a breach has occurred and pay penalty as mitigation measure to avoid court litigation. "Penalties can even reach up to ₹250 crore for each instance of breach ranging up to ₹250 crores and an upward revision of ₹500 crore can be made," the official said.

As per the draft, the Data Protection Board of India could fine firms which do not protect user data with fines for individual offences ranging from ₹10,000 to ₹500 crore, which may apply in case of data breaches.

In global experience, the official said that 90% to 95% cases were settled at the grievance redressal stage. "In the EU, this law took 10 to 12 years to evolve, we believe evolution in India will also take time," the official said. However, if the aggrieved party (individual whose data is breached) wants to seek compensation they will have to move the courts and resort to the judicial process, the official added.

In an eco-system where artificial intelligence is rapidly evolving and applications such as ChatGPT is scraping data from social media platforms to test its models, the official added that the upcoming Bill was "tech agnostic", and "would cater to the world we are in today".

As per the latest draft, courts and law enforcement agencies enjoy wide exemptions from key requirements, as the Bill's requirements do not apply when "personal data is processed in the interest of prevention, detection, investigation or prosecution of any offence or contravention of any law" or "the

processing of personal data by any court or tribunal or any other body in India is necessary for the performance of any judicial or quasi-judicial function".

RTI Act

Right to Information activists have raised concerns on an amendment to the RTI Act, 2005 in the DPDP Bill that would prohibit government departments from sharing personal information, arguing government departments may refuse to share information that could hold public officials accountable.

"Any personal data will not be shared with a third party, however a person whose data has been breached can ask for their own information through RTI," said the official.

The Bill comes after multiple versions floated by the Union government, a process that was started way back in 2017 with the *K.S. Puttaswamy v Union of India* judgment, where privacy was declared as key to the fundamental right to life and personal liberty under Article 21 of the Constitution.

The risks of the Zaporizhzhia NPP

Why is the Ukrainian nuclear power plant (NPP) a matter of concern? What has the Lithuania-based Bellona Foundation report outlined? How is this nuclear plant different from the Chernobyl power plant? What agent is used as the moderator and coolant in the reactor?

EXPLAINER

Vasudevan Mukunth

The story so far:

Nuclear power plants (NPPs) are complex and sophisticated facilities with several layers of safety measures, but no NPP in the world is built to withstand war – yet this is the risk that has befallen the Zaporizhzhia NPP in Ukraine. It was taken over by Russian forces in May 2022 and has since had to operate in conditions that threaten safety. In June, a Lithuania-based NGO named the Bellona Foundation published a report analysing the risks associated with the hostilities around the Zaporizhzhia NPP based on the facility's design, safety measures, and the local geography.

What is the reactor design?

The Zaporizhzhia NPP is located southwest of Zaporizhzhia city, along the Dnieper river. It has six VVER-1000 reactors for a total power generation capacity of 6 GW. The reactor complex consists of the reactor vessel, in which uranium-dioxide fuel rods are immersed in water and control rods are inserted at the top. The water is both coolant and moderator. A pressuriser holds the water at a high but constant pressure – around 150 atm – to prevent it from boiling. This is the primary cooling circuit. As the water heats up, the heat is moved to a secondary cooling circuit, where it converts a separate volume of water into steam. This steam is fed to turbines to generate electricity.

In this design, the water in the primary circuit does not leave the reactor vessel at any time. In RBMK reactors like at Chernobyl, the coolant and the moderator are different (light water and nuclear graphite respectively) and the coolant – which is radioactive for having been exposed to the nuclear fuel – flows out of the reactor vessel. One reason why Chernobyl became a disaster was because



At risk: The Zaporizhzhia power plant in Zaporizhzhia, Russia-controlled Ukraine on June 15. REUTERS

when the reactor was breached, the superhot graphite caught fire when it came in contact with air. Unlike Chernobyl, the VVER-1000 reactor and its power-generation units at Zaporizhzhia are placed inside a large airtight chamber called a containment.

What is the risk at Zaporizhzhia?

The Bellona report evaluated the risk of different types of accidents at the facility based on the types of damage sustained. In the worst case scenario, the containment is completely damaged and a projectile strikes a reactor while it is generating power.

The principal danger here is that the primary circuit water could depressurise as steam and escape into the air, along with radioactive material and other volatile substances. This mixture will contain the isotope iodine-131, which is easily dispersed by winds and accumulates in and damages the thyroid gland in humans. It has a half-life of around eight days and so, per the report, “would only pose a threat for several weeks”. A breach and depressurisation would also release caesium-137, which has a half-life of 30 years and was responsible for contaminating much of Chernobyl's surroundings after the accident. How

either isotope is dispersed depends on the immediate weather, especially the strength and direction of the wind.

That being said, due to design differences, what was released in sustained fashion at Chernobyl for around a week is likely to be released in a single, short burst at Zaporizhzhia. This could keep the fallout to within 100 km.

Are there best-case scenarios?

If the reactors are shut for a few months, the iodine-131 will almost completely decay, removing an important threat. If a reactor has been in cold-shutdown (a shutdown where the primary circuit is almost at atmospheric pressure), then the chances of an explosive leak also drop. Since September 10, 2022, the six reactors at Zaporizhzhia have been shut. In late 2022, two were placed in a state of semi-hot shutdown, meaning the primary circuit was held at 200 degrees Celsius with heat from the decaying nuclear fuel. This was required to provide heat at the facility and for the nearby town of Enerhodar.

As of May 2023, all reactors but the sixth were in cold-shutdown.

What are the other concerns?

The Bellona report discussed several possibilities based on combinations of conditions. One was the ‘Fukushima scenario’ – when the NPP becomes disconnected from the external power grid. This is dangerous because, when nuclear reactions are not happening in the reactor, the nuclear fuel has to be cooled, which means the coolant pumps need to operate. If they don't, the fuel could become hot enough to melt through the reactor's bottom, where it will contaminate soil, air, and water.

A final concern is the working conditions of the 3,000 or so people at the plant, most of whom have refused to sign new employment contracts with their new Russian employers, amid, among other things, uncertainties over the management, violations of protocol, and “suspicions of disloyalty”.