

247 students from govt. schools set to study in premier higher education institutions

Nearly all of them are from an underprivileged background, and many of them would be the first graduate in their family; the Government of Tamil Nadu is funding their college education; increase in numbers indicative of an improvement in the quality of education in government schools: CM

The Hindu Bureau
CHENNAI

Jayashree Perumal and Aval Sindhu, who will soon start their college education, say they are mostly excited, and nervous, about the new experiences that await them. The government school students will fly to Taiwan to pursue an undergraduate degree, and have secured a full scholarship for it.

A total of 247 students from government schools across the State, who are set to study in prestigious higher education institutions, were honoured by the Tamil Nadu government on Wednesday. Nearly all of them are from an underprivileged background, and many of them would be the first graduate in their family. The Government of Tamil Nadu is funding their college education. Many of these students completed Class XII



Chief Minister M.K. Stalin felicitating students from government schools who are set to study in premier higher education institutions, at an event in Chennai on Wednesday.

at the Model Schools run by the School Education Department.

A student of the Model School in Dharmapuri district, Jayashree will pursue a degree in mechanical engineering at Kun Shan University in Taiwan, and Sindhu will pursue a course in International Business and Trade at Ming Chuan University. This is a

first for government students from the State.

"I had secured admission into NIT to pursue engineering, but then heard about the scholarships being offered in Taiwan through my school. The university's curriculum for mechanical engineering was interesting, and I look forward to studying there," said Jayashree, who will be



While there were 75 students last year, this year, there are 247 students who are going to study in top colleges

M.K. STALIN
Chief Minister

the first graduate in her family once she completes her college education.

A keen interest in law is what motivated I. Abdulla, a student of the Model School in Sivaganga, to clear the Common Law Admission Test (CLAT) with flying colours. "I was coached to clear the competitive exam, and was able to attend additional sessions with subject experts at school, which helped," he said. While his father works in Kerala, his mother is a daily wage labourer in his village.

P. Vasanthakumar, a stu-

dent of the Model School in Salem, whose father is a spinning mill worker, cleared JEE earlier this year, and has begun his engineering programme in metallurgy at IIT-Madras.

S. Kathiravan, a student from Krishnagiri, who has a locomotor disability, will soon start his higher education at Kilpauk Medical College.

Addressing these students, Chief Minister M.K. Stalin said that while it was rare to see students from government schools secure admission into premier institutes of education in the country, the times were changing. "We strongly believe that everyone should have access to everything, and it is towards this [goal] that the Tamil Nadu government has implemented several schemes that will help students prepare for and pursue higher education in these institutions. While there were 75 students last

year, this year, there are 247 students who are going to study in top colleges," he said.

Increase in numbers

Mr. Stalin said six students will go to IITs across the country this year, when compared to one last year. "Six students each are going to study at the Indian Maritime University and the National Forensic Sciences University. While there were 13 students last year who cleared the JEE mains and went on to study at NITs, IITs and other institutions, the number has increased to 77 this year," he said.

He said this was indicative of an improvement in the quality of education in government schools, and urged students to make use of the opportunities given to them. "Only when students from our schools get into these institutions will we be on the path to social equality," he said.

Orbit reduction manoeuvre of Chandrayaan-3 performed

ISRO's third moon mission is now just 1,437 km away from the moon; the next operation is scheduled for August 14; soft landing on the south polar region of the moon will be on August 23

The Hindu Bureau
BENGALURU

The Indian Space Research Organisation on Wednesday carried out another orbit reduction manoeuvre of India's third moon mission, Chandrayaan-3.

The manoeuvre was performed from ISRO Telemetry, Tracking and Command Network (IS-TRAC) centre in Bengaluru. The spacecraft is now just 1,437 km from the moon.

The ISRO stated: "Even closer to the moon's surface. Chandrayaan-3's orbit is reduced to 174 km x 1437 km following a manoeuvre performed today. The next operation is scheduled for August 14, 2023,



A view of the moon from the Chandrayaan-3 lander, India's third mission to the only natural satellite of earth. REUTERS

between 11.30 and 12.30 hrs. IST." The fifth and final orbit reduction manoeuvre will be carried out on August 16.

After the lunar orbit insertion on August 5, ISRO stated: "As the mission progresses, a series of manoeuvres have been

planned to gradually reduce Chandrayaan-3's orbit and position it over the lunar poles. After some manoeuvres, the propulsion module will separate from the lander while in orbit. Following that, a series of complex braking manoeuvres will be execut-

ed to facilitate a soft landing on the south polar region of the moon on August 23, 2023."

Meanwhile, ISRO Chairman S. Somanath met Dr. Saku Tsuneka, Director General, National Astronomical Observatory of Japan, and discussed space science cooperation between India and Japan.

The Indo-Japanese Lunar Polar Exploration mission was envisaged to explore the 'dark side of the moon', or in scientific terms, the side that is perpetually facing away from Earth. The main objective of the mission is to confirm the presence of water in the polar regions of the moon. The mission may be launched in the next couple of years.

Change State's name to Keralam, Assembly resolution urges Centre

The Hindu Bureau

THIRUVANANTHAPURAM

The Kerala Assembly on Wednesday unanimously passed a resolution urging the Centre to officially change the name of the State from Kerala to Keralam.

The Assembly sought an amendment to the Constitution, which too refers to the State as Kerala, in this regard.

Chief Minister Pinarayi Vijayan presented the contents of resolution in the House under Rule 118 of the Rules of Procedure and Conduct of Business in the Kerala Legislative Assembly.

While Keralam is the accepted and common usage in Malayalam, the State is generally referred to as Kerala in official records, especially those in English. The First Schedule of the

Constitution also specifies the name of the State as Kerala.

"The name of our State is Keralam in Malayalam language. States were formed based on language on November 1, 1956. Kerala Day is also on November 1. The need to unite Kerala for the Malayalam-speaking communities has been strongly evident since the time of the national freedom struggle. However,

the name of our State is listed as Kerala in the First Schedule of the Constitution. This Assembly unanimously requests the Union government to take immediate steps to amend it to Keralam under Article 3 of the Constitution," says the resolution.

Article 3 deals with the formation of new States and alteration of areas, boundaries or names of existing States.

To curb price rise, Centre to release more foodgrain stock by open market sale

Govt. hopes the measure will ensure adequate domestic availability of rice, wheat and *atta*; it plans to bring down reserve price of rice by ₹200 a quintal, which will now be ₹2,900 a quintal

The Hindu Bureau
NEW DELHI

Concerned over the increase in prices of foodgrains, the Centre on Wednesday decided to additionally sell 50 lakh tonnes of wheat and 25 lt of rice through the Open Market Sales Scheme for Food Corporation of India stocks.

The government hoped that the sale would ensure adequate domestic availability of rice, wheat and *atta* and check their prices.

Union Food Secretary Sanjeev Chopra told presspersons that the Centre had also decided to bring down the reserve price of rice by ₹200 a quintal – the effective price now would be ₹2,900 a quintal.

The cost of this reduction would be adjusted from the price stabilisation fund of the Department of Consumer Affairs. The price of wheat has gone up by 6.77% in retail market and 7.37% in wholesale



In check: The Centre says that 7-8 lakh tonne of wheat has been auctioned under the Open Market Sales Scheme. FILE PHOTO

market in the past one year and in the case of rice, the increase is 10.63% and 11.12%, respectively. The Centre said that the step will help 140 crore people.

Wheat import duty

Asked about the possibility to reduce the wheat import duty, Mr. Chopra said the Centre would take a decision based on the requirements. "Prices of two commodities have been in the news for the past couple of months because of

the rising trend that we are noticing," he said. The new limit is over and above the 15 lt of wheat and 5 lt of rice being sold through the OMSS.

About 7-8 lakh tonne of wheat has been auctioned under the OMSS so far, while rice sale is negligible, he said. He added that these measures would not only improve the availability in the market but also help cool down the prices and control food inflation. "The ultimate objective is

to keep the food inflation under check," he said.

FCI Chairman and Managing Director Ashok K. Meena, who was present at the press conference along with Union Consumer Affairs Secretary Rohit Kumar Singh, said seven e-auctions had been conducted so far.

"Initially, wheat offered for sale used to be 4 lakh tonnes and now, it has been reduced to 1 lakh tonne in today's e-auction. About 8 lakh tonnes of wheat has been sold till date," he said. He added that the weighted average selling price of wheat on June 28 was ₹2,136.36 a quintal, which had now gone up to ₹2,254.71 a quintal.

"This shows there is an increase in the market demand for wheat," he added. On buffer stocks, he said the FCI had additional 87 lakh tonnes of wheat and 217 lakh tonnes of rice available above buffer norms.

Can SMRs help India achieve net zero?

What are small nuclear modular reactors? What differentiates them from conventional nuclear power plants? How can they contribute to decarbonisation? How will they affect India's demand for and use of uranium? What legal and regulatory changes do they entail?

EXPLAINER

R. Srikanth

The story so far:

The world's quest to decarbonise itself is guided, among other things, by the UN Sustainable Development Goal 7: "to ensure access to affordable, reliable, sustainable and modern energy for all". Since the world still depends on fossil fuels for 82% of its energy supply, decarbonising the power sector is critical; the share of electricity in final energy consumption will also increase by 80%-150% by 2050. The recent uptick in coal consumption in Europe, despite the increase in solar and wind power, suggests that reliable, 24/7 low-carbon electricity resources are critical to ensure the deep decarbonisation of power generation, along with grid stability and energy security. Small modular reactors – a type of nuclear reactor – can be helpful to India in this regard.

What are the challenges of decarbonisation?

The transition from coal-fired power generation to clean energy poses major challenges, and there is a widespread consensus among policymakers in several countries that solar and wind energy alone will not suffice to provide affordable energy for everyone. In decarbonised electricity systems with a significant share of renewable energy, the addition of at least one firm power-generating technology can improve grid reliability and reduce costs.

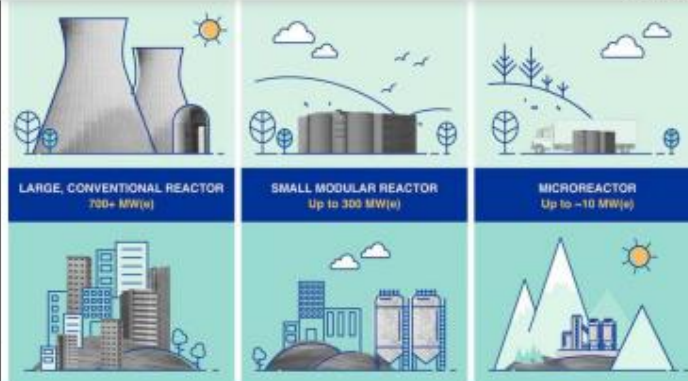
According to the International Energy Agency, the demand for critical minerals like lithium, nickel, cobalt, and rare earth elements, required for clean energy production technologies, is likely to increase by up to 3.5 times by 2050. This jump poses several global challenges, including the large capital investments to develop new mines and processing facilities. The environmental and social impacts of developing several new mines and plants in China, Indonesia, Africa, and South America within a short time span, coupled with the fact that the top three mineral-producing and mineral-processing nations control 50-100% of the current global extraction and processing capacities, pose geopolitical and other risks.

What are the issues with nuclear power?

Nuclear power plants (NPPs) generate 10% of the world's electricity and help it avoid 180 billion cubic metres of natural gas demand and 1.5 billion tonnes of CO₂ emissions every year. Any less nuclear power could make the world's journey towards net-zero more challenging and more expensive.

NPPs are efficient users of land and their grid integration costs are lower than those associated with variable renewable energy (VRE) sources because NPPs generate power 24x7 in all kinds of weather. Nuclear power also provides valuable co-benefits like high-skill jobs in technology, manufacturing, and operations.

This said, conventional NPPs have generally suffered from time and cost overruns. As an alternative, several countries are developing small modular reactors (SMRs) – nuclear reactors with a maximum capacity of 300 MW – to complement conventional NPPs. SMRs can be installed in decommissioned thermal power plant sites by repurposing



existing infrastructure, thus sparing the host country from having to acquire more land and/or displace people beyond the existing site boundary.

What are the advantages of SMRs?

SMRs are designed with a smaller core damage frequency (the likelihood that an accident will damage the nuclear fuel) and source term (a measure of radioactive contamination) compared to conventional NPPs. They also include enhanced seismic isolation for more safety. SMR designs are also simpler than those of conventional NPPs and include several passive safety features, resulting in a lower potential for the uncontrolled release of radioactive materials into the environment. The amount of spent nuclear fuel stored in an SMR project will also be lower than that in a conventional NPP.

Studies have found that SMRs can be safely installed and operated at several brownfield sites that may not meet the more stringent zoning requirements for conventional NPPs. The power-plant organisation can also undertake community work, as the Nuclear Power Corporation did in Kudankulam, Tamil Nadu, before the first unit was built.

Accelerating the deployment of SMRs under international safeguards, by implementing a coal-to-nuclear transition at existing thermal power-plant sites, will take India closer to net zero and improve energy security because uranium resources are not as concentrated as reserves of critical minerals.

Most land-based SMR designs require low-enriched uranium, which can be supplied by all countries that possess uranium mines and facilities for such enrichment if the recipient facility is operating according to international standards. Since SMRs are mostly manufactured in a factory and assembled on site, the potential for time and cost overruns is also lower. Further, serial manufacture of SMRs can reduce costs by simplifying plant design to facilitate more efficient regulatory approvals and experiential learning with serial manufacturing.

Since SMRs are designed to operate for more than 40 years, the levelised cost of electricity is \$60-90 per MWh. The figure is expected to drop rapidly after 2035, by when the SMRs ordered by a number of east-European countries from NuScale and GE Hitachi are expected to come online. The costs will decline steepest for

India when reputed companies manufacture SMRs. This at least was the reason SMRs were included in the U.S.-India joint statement after Prime Minister Narendra Modi met U.S. President Joe Biden in June 2023.

What is the need for an efficient regulatory regime?

This said, an efficient regulatory regime comparable to that in the civil aviation sector – which has more stringent safety requirements – is important if SMRs are to play a meaningful role in decarbonising the power sector. This can be achieved if all countries that accept nuclear energy direct their respective regulators to cooperate amongst themselves and with the International Atomic Energy Agency to harmonise their regulatory requirements and expedite statutory approvals for SMRs based on standard, universal designs.

How can SMRs be integrated with the national grid?

India's Central Electricity Authority (CEA) projects that the generation capacity of coal-based thermal power plants (TPPs) in India must be increased to 250,000 MW by 2032 from the current 212,000 MW, while enhancing the generation capacity of VRE sources to 486,000 MW from 130,000 MW. Integrating this power from VRE sources with the national grid will require additional energy storage – to the tune of 47,000 MW/236 GWh with batteries and 27,000 MW from hydroelectric facilities.

The CEA also projects that TPPs will provide more than half of the electricity generated in India by 2031-2032 while VRE sources and NPPs will contribute 35% and 4.4%, respectively. Since India has committed to become net-zero by 2070, the country's nuclear power output needs a quantum jump. Since the large investments required for NPP expansion can't come from the government alone, attracting investments from the private sector (in PPP mode) is important to decarbonise India's energy sector.

What are the legal and regulatory changes required?

The Atomic Energy Act will need to be amended to allow the private sector to set up SMRs. To ensure safety, security, and safeguards, control of nuclear fuel and radioactive waste must continue to lie with the Government of India. The

government will also have to enact a law to create an independent, empowered regulatory board with the expertise and capacity to oversee every stage of the nuclear power generation cycle.

The security around SMRs must remain under government control, while the Nuclear Power Corporation can operate privately-owned SMRs during the hand-building process.

Finally, the Department of Atomic Energy must improve the public perception of nuclear power in India by better disseminating comprehensive environmental and public health data of the civilian reactors, which are operating under international safeguards, in India. The author is professor and dean, National Institute of Advanced Studies, Bengaluru.

THE GIST

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