

DIA, DEOGHAR IAS ACADEMY

Daily News Feed

D.N.F

28.01.2025

**Sabaijor Complex, Near Jamunajor Pul, Castair Town
Deoghar, Mob:-9162500508**



India said to ditch privatisation plans of many state-run firms

Reuters
NEW DELHI

Prime Minister Narendra Modi is pouring billions into ailing state-run firms after slowing ambitious divestment plans that were intended to reduce the role of the state in business, according to government sources and a document reviewed by Reuters.

Less than a month into 2025, New Delhi has plans to invest about \$1.5 billion in financial rescue packages for two state-owned firms after failing to sell them to private firms.

It has also decided to put in "abeyance" privatisation of at least nine state-owned units after opposition from relevant ministries, as per a document that detailed recommenda-

tions of a government panel set up to identify privatisation candidates. The document, reviewed by Reuters, did not cite reasons for its decision.

Nine PSUs in 'abeyance'
The nine companies include Madras Fertilizers, Fertilizer Corp of India, MMTC and NBCC (India), the document showed.

Housing and Urban Development Corp, that was also identified for privatisation, has now been "exempted" implying it will not be sold.

Among the state-owned companies being revived with government funding is helicopter operator Pawan Hans.

The government is planning to infuse around \$230-\$350 million in Pawan



Slowing divestment: Last week, the Centre announced a \$1.3 bn plan to revive debt-laden RINL. PTI

Hans to modernise its aging fleet of helicopters after four failed attempts to sell the company, two government sources said.

The amount of infusion

is still being finalised as the options being considered for fleet modernisation include both outright acquisition and leasing, one of the sources said, request-

ing anonymity.

India's finance and civil aviation ministries did not immediately reply to e-mails seeking comment on the privatisation plans or

on the Pawan Hans investment.

In 2021, Mr. Modi's government announced a major programme to privatise most of India's PSUs. The plan was so drastic that in the four sectors that India sees as sensitive, such as telecom and banking, it wanted to keep a minimum presence, while exiting from all others.

But now it is planning rescue and revival plans for companies even outside the sensitive sectors.

Last week, the government announced a \$1.3 billion plan to revive debt-laden steel producer Rashtriya Ispat Nigam Ltd.

The government also allocated \$80 billion in FY 2024-25 for bond repayments of state-run telco MTNL that has seen a se-

ries of defaults lately, according to budget documents for the current year.

Four years since the privatisation policy was announced, the Modi government has had only three successes, out of which Air India's sale to the Tata Group was the largest. The other two were indirect holdings in steel-maker Neelachal Ispat Nigam Ltd to Tata Steel and Ferro Scrap Nigam to Konoike Transport Co.

The U-turn in policy was partly driven by the expectation that some large state-owned firms could be made profitable, helping the government earn dividend income, Reuters has reported previously.

Political pressures on Modi have increased after he came back to power in

mid-2024 with the help of regional allies, making it difficult to overcome opposition to privatisation by unions fearing job losses.

Stalled efforts

The sale of state refiner Bharat Petroleum Corp was rolled back in 2022 after failing to get suitors. The ongoing privatisation of Shipping Corp of India and BEML has been stuck for years due to complications over transfer of land holdings. The government has also been dragging its feet on the sale of a majority stake in IDBI Bank.

In previous years, privatisation formed a chunk of the government's plan to reduce its budget gap. But with falling fiscal deficit the push for divestment has waned.



RBI moves to ease liquidity crunch

Reuters

The RBI on Monday announced a host of measures to inject liquidity in the banking system, including bond purchases and dollar/rupee swaps.

The Reserve Bank of India will buy government bonds worth 600 billion rupees (\$6.96 billion) in three tranches and con-

duct a 56-day variable rate repo auction worth 500 billion rupees on Feb. 7, it said in a release.

It will also conduct a USD/INR buy/sell swap auction of \$5 billion for a tenor of six months on Jan. 31, the RBI said.

India's banking system liquidity deficit had widened to a one-year peak in the previous fortnight.



Stocks tumble to a seven-month low

Reuters

Indian shares slid more than 1% on Monday, with the benchmark Nifty 50 and Sensex indexes finishing at seven-month lows, as a swathe of lacklustre earnings reports fuelled fears that a slowdown in corporate profits would continue.

The Nifty 50 fell 1.14% to end at 22,829.15, while the

BSE Sensex shed 1.08% to close at 75,366.17.

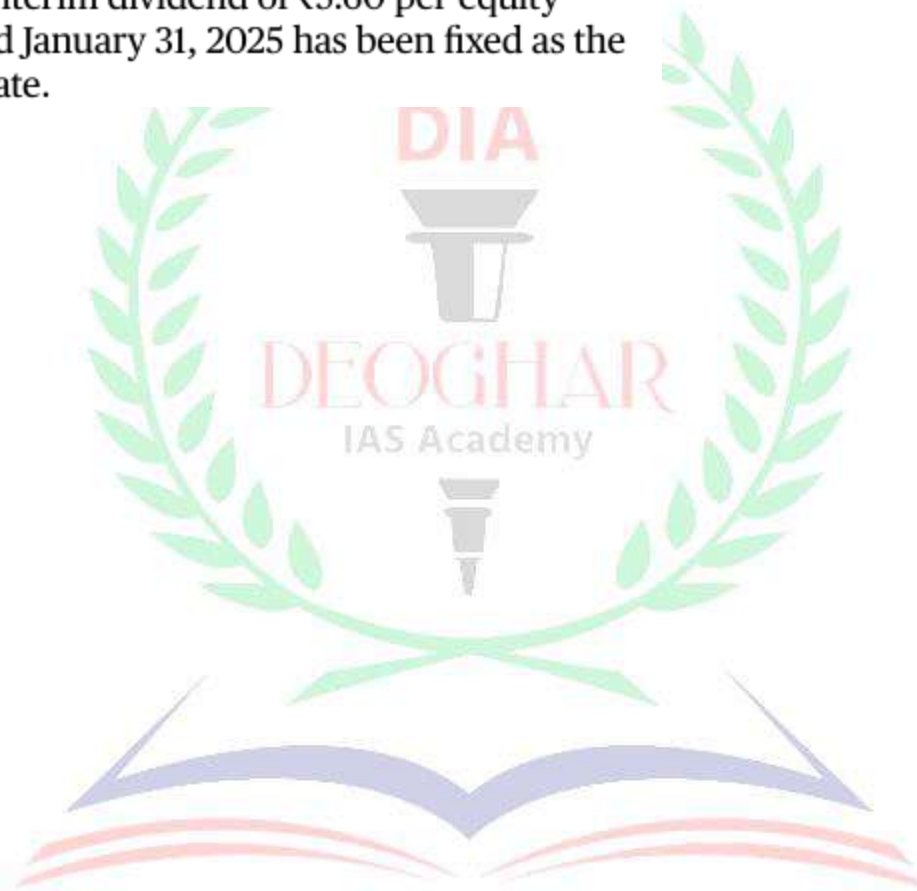
Small-cap stocks sank 3.8%, while mid-caps lost 2.75%, both posting their worst session in two weeks. All 13 major sectors logged losses.

Among the companies reporting earnings, IDFC First Bank fell about 9% after posting a lower quarterly profit, hurt by souring microfinance loans



Coal India Q3 net profit slides 17% to ₹8,491 crore

Coal India Ltd. (CIL) reported a 17% decline in its consolidated net profit at ₹8,491 crore for the third quarter ended December 31, 2024, as compared with ₹10,292 crore in the year-earlier period. Sales income for the quarter dropped 2% to ₹32,359 crore from ₹33,011 crore in the year-earlier period. The board has announced a second interim dividend of ₹5.60 per equity share and January 31, 2025 has been fixed as the record date.





RBI chief tells banks to build robust systems against frauds

Flagging the rising digital frauds, RBI Governor Sanjay Malhotra on Monday urged banks to put in place robust and proactive systems to curb such misdoings as well as enhance their oversight of third-party service providers to mitigate the risks. Mr. Malhotra, along with his deputies M. Rajeshwar Rao, T. Rabi Sankar and Swaminathan J, met MDs and CEOs of public and private sector banks here on Monday. The meeting was also attended by RBI's executive directors in charge of regulation and supervision. PTI



Is the Guillain-Barré Syndrome life-threatening?

What are the causes and symptoms of Guillain-Barré Syndrome? What are the treatment methods, and is a full recovery possible? What is happening in Pune?

Zubeda Hamid

The story so far:

Following a reported outbreak of Guillain-Barré Syndrome, a rare neurological disorder, in Pune, with 73 cases so far, the Union Health Ministry has now sent a team to the city to assess the situation. The Maharashtra government has also set up a Rapid Response Team to investigate the sudden rise in infections. A total of 47 men and 26 women have been affected, with 14 on ventilator support, the State Health Department has said, as of Saturday, January 25, 2025.

What is Guillain-Barré Syndrome?

Guillain-Barré Syndrome (GBS) is an autoimmune neurological disorder in which a person's immune system attacks their peripheral nerves, leading to muscle weakness that can progress to paralysis.

People of any age can be affected, but it is more common in adults and males. The condition is rare, with an estimated incidence of 1/2 per 1,00,000 population.

While the causes of GBS are still not fully understood, in most cases, it occurs after a viral or bacterial infection. According to the World Health Organization (WHO), infection with the bacteria *Campylobacter jejuni*, which causes gastroenteritis (including symptoms of nausea, vomiting and diarrhoea), is one of the most common risk factors for GBS. People can also develop GBS after having the flu or other viral infections from cytomegalovirus, Epstein-Barr virus, and the Zika virus.

How does it affect the body?

In autoimmune conditions, the body's immune system begins to attack its own cells. In GBS, the immune system destroys the myelin sheath – a fatty layer wrapped

around nerve cells. This impacts the nerves' ability to send signals to the brain, which causes weakness in the muscles. GBS affects the peripheral nervous system – the part of the nervous system outside the brain and spinal cord – that controls the movement of muscles, temperature, touch and pain sensations.

The first signs of GBS are usually tingling and weakness that start in the feet and legs before spreading to the upper body, arms and face. Symptoms include pins and needles feeling in the toes, fingers, ankles or wrists, back pain, pain in the legs, not being able to walk or climb stairs, trouble with facial movements and double vision. For some people this can lead to paralysis of the legs, arms or face. The severity of the symptoms can range from mild to severe. In approximately one-third of people, the chest muscles are affected, making it hard to breathe, the WHO says. The ability to speak and

swallow can become affected in severe cases. GBS can lead to life-threatening complications when it affects the autonomic nervous system which controls your blood pressure and heart rate.

How is it treated?

There is no known cure for GBS. However, there are some treatments that aid in recovery. Most people can make a nearly full recovery. The treatments primarily include plasma exchange and intravenous immunoglobulin therapy. In plasma exchange or plasmapheresis, the plasma (liquid part of the blood) is removed, treated and then returned to the body. This removes the antibodies from the plasma that are attacking the nerves. Intravenous immunoglobulin therapy involves injecting the body with immunoglobulins, which are proteins that the body makes to identify and neutralise pathogens. This helps decrease the immune system's attack on the nerves. Supportive treatment is also given and rehabilitation including physical and occupational therapy may be required. Recovery can take a long time.

The WHO says Guillain-Barré syndrome is potentially life-threatening. People with Guillain-Barré syndrome should be treated and monitored as quickly as possible and some may need intensive care. If you experience sudden muscle that gets worse over some days, see a doctor immediately.

THE GIST

Guillain-Barré Syndrome (GBS) is an autoimmune neurological disorder in which a person's immune system attacks their peripheral nerves, leading to muscle weakness that can progress to paralysis.

There is no known cure for GBS. However, there are some treatments that aid in recovery. Most people can make a nearly full recovery.

While the causes of GBS are still not fully understood, in most cases, it occurs after a viral or bacterial infection.



Will the FY26 Budget reverse the decline in social sector spending?

Over the last few years, there have been steep cuts in MGNREGS, the national social assistance schemes, and PM-Poshan

DATA POINT

Sambavi Parthasarathy,
Samreen Wani
Vignesh Radhakrishnan

The share of the Union Budget allocated for the social sector has declined rapidly in recent years. Data show that the outlays to most schemes under the rural development, education, health, and social welfare heads have either declined or stagnated.

Table 1 shows the allocations for various social sectors as a share of the total Budget. Expenditure on health as a share of the total Budget declined from 2.47%-2.22% in the FY18-22 period to 1.85%-1.75% in the FY23-25 period. The share of the total Budget allocated to the Ministry of Rural Development did not cross the 6%-mark in the last three years, which was the case for many years prior.

Similarly, allocations for higher education as a share of the total Budget declined from the 1.57%-1.37% range in FY17-20 to 1.27%-0.88% in FY21-25. Allocations for school education declined from the 2.18%-1.96% range to 1.61%-1.23% and allocations for social welfare schemes declined from the 1.89%-1.61% range to 1.17%-0.97% in the same period.

The reduced allocations can be better understood at the scheme level. Table 2 shows the allocations for various social sector schemes as a share of the total Budget. Notably, allocations for schemes such as the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), introduced under the United Progressive Alliance government, have declined significantly over time. The ₹86,000 crore (Budget Estimates) allocated for MGNREGS for 2024-25 formed only 1.78% of the total Budget, a 10-year low. Latest data show that the Rural Development Ministry was short of ₹4,315 crore, which result-

ed in a delay in the disbursement of wages to MGNREGS workers. Allocation for the national social assistance programme, which includes old age pension, widow pension, and disability pension, has declined as a share of the total Budget from the range of 1.21%-0.36% in the years FY19-21 to about 0.2% in the last four years.

The allocations for the Pradhan Mantri Poshan Shakti Nirman (PM-POSHAN) scheme as a share of the total Budget declined to 0.26% in FY25 (Budget Estimates) – the lowest in the last nine years – except FY24 (Revised Estimates). The primary objective of the scheme is to improve the nutritional status of children studying in Classes 1 to 8 in eligible schools. It was earlier known as the National Programme of Mid-Day Meals in Schools.

There were some exceptions to this trend: allocations under the Ayushman Bharat-Pradhan Mantri Jan Arogya Yojana (PMJAY), the Pradhan Mantri Awas Yojna (PMAY)-Rural, and PM Schools for Rising India (PM SHRI) as a share of the total Budget were on an increasing trend or at least stagnating. Notably, all these schemes were launched post 2014.

With the Budget for the next financial year set to be presented on February 1, it will be crucial to examine how the declining allocations for the social sector are being addressed. The sector has under its umbrella a host of important schemes, as shown in Table 3. The table shows major expenditure heads under each social sector. The number in the table corresponds to a scheme/expenditure head's share in each sector's total budget. For instance, about 33% of the health budget for the current year went to a flexible pool to be used by States for their health needs and 20.6% was allocated to autonomous bodies such as AIIMS. Close to half of the rural development budget was given to MGNREGS and over 30% went to PMAY-Rural.

Shrinking social sector pie

The data for the charts were sourced from the Union Budget documents

Table 1: Allocations for social sectors as a share of Budget (in %)

Year	Health	Rural Development	Higher Education	School Education	Social Welfare
FY18	2.47	6.3	1.57	2.18	1.75
FY19	2.35	5.74	1.38	2.09	1.89
FY20	2.36	5.3	1.37	1.96	1.66
FY21	2.28	5.1	0.92	1.48	1.07
FY22	2.22	6.03	0.88	1.23	1.07
FY23	1.75	5.69	0.92	1.4	0.97
FY24	1.76	5.32	1.27	1.61	1.04
FY25	1.85	5.51	0.99	1.51	1.17



Table 2: The table shows the allocations for select social sector schemes as a share of India's total Budget each year

Total	FY19	FY20	FY21	FY22	FY23	FY24(RE)	FY25(BE)
Rural development							
National social assistance programme	0.36	0.32	1.21	0.21	0.23	0.21	0.20
MGNREGS	2.67	2.67	3.17	2.60	2.17	1.92	1.78
Pradhan Mantri Gram Sadak Yojna	0.67	0.52	0.39	0.37	0.45	0.38	0.25
DAY-NRLM	0.25	0.34	0.26	0.25	0.28	0.31	0.31
Pradhan Mantri Awas Yojna (PMAY)-Rural	0.83	0.67	0.55	0.79	1.07	0.71	1.13
Health							
Pradhan Mantri Jan Arogya Yojana (PMJAY)	0.09	0.12	0.08	0.08	0.15	0.15	0.15
School education							
Samagra Shiksha		1.21	0.79	0.66	0.78	0.73	0.77
PM POSHAN	0.41	0.36	0.37	0.27	0.30	0.22	0.26
PM Schools for Rising India (PM SHRI)						0.06	0.13
Higher education							
University Grants Commission	0.20	0.17	0.11	0.12	0.12	0.14	0.05
Grants to Central Universities (CUs)	0.29	0.30	0.24	0.23	0.26	0.28	0.33
IITs	0.24	0.25	0.19	0.21	0.21	0.23	0.21
IIMs	0.015	0.018	0.013	0.017	0.014	0.007	0.004
NITs and IIEST	0.15	0.13	0.09	0.09	0.10	0.11	0.10

Table 3: The table shows major schemes/expenditure heads as a share of each social sector's total allocations in FY25BE (in %)

Health	Rural development		School education		Higher education	
Flexible pool for States	32.8	MGNREGS	48.4	Samagra Shiksha	50.7	Central Univs.
Autonomous bodies	20.6	PMAY-Rural	30.7	Autonomous bodies	21.4	IITs
PMJAY	8.3	DAY-NRLM	8.5	PM-POSHAN	17.1	NITs, IIEST
Infrastructure maintenance	8.0	PMGSY	6.8	PM-SHRI	8.3	UGC
Medical treatment of pensioners	6.1	Social assistance	5.4			Student aid
						4.0



FROM THE ARCHIVES

The Hindu.

FIFTY YEARS AGO JANUARY 28, 1975

Bill to ensure correct weights and measures

New Delhi, Jan. 27: A Bill regulating the provisions relating to metric weights and measures would soon be considered by Parliament, the Minister of State for Industry and Civil Supplies, Mr. A.C. George, said here to-day.

Mr. George, who was inaugurating a conference of the developing countries on metrication and legal metrology, stressed the need for a correct measurement of weights and measures in a developing country not only to prevent consumers being cheated but to ensure that the commodities of developing countries could compete effectively with those of the advanced ones.

The Weights and Measures (law revision) committee, on whose report the proposed legislation would be based, estimated that even one per cent error in weighing and measuring in retail trade in India would cause a loss of Rs. 160 crores to the public in one year.

Mr. George said the provisions in the proposed law on metrological and allied matters relating to packaged commodities required that the quantity contained in a package should not be less than the quantity declared.

Besides the indication of net quantity, the package should also indicate the price as well as the date of packaging and the date by which the commodity should be used. Additional information about size, concentration ratio should also be given, he said.



The Union Budget as a turning point for climate action

All eyes will be on Union Finance Minister Nirmala Sitharaman when she takes centre stage on February 1 to present the Union Budget. As the nation grapples with increasingly frequent extreme weather events and mounting pressure to meet its climate commitments, the FY26 Budget carries the weight of both urgency and opportunity. With just five years left to achieve India's first interim Net-Zero target, the Budget must take decisive steps to protect those on the frontlines of climate change.

Previous Budgets have demonstrated the government's commitment to climate action, notably through initiatives such as the PM Surya Ghar Muft Bijlee Yojana, support for electric vehicle charging infrastructure, viability gap funding for offshore wind energy, and increased allocations for the National Green Hydrogen Mission. Yet, with a total renewable energy installed capacity of 203.18 GW, far short of the 2030 target of 500 GW, accelerated investment and policy support are imperative.

There is much work to be done

The Budget must prioritise key policy measures to strengthen India's climate response and accelerate progress on both adaptation and mitigation fronts. First, to accelerate India's green energy transition, the PM Surya Ghar Muft Bijli Yojana needs a comprehensive review. While the scheme has seen around 1.45 crore registrations, the completion rate of only 6.34 lakh installations (4.37%) indicates the presence of significant implementation gaps. To address this, the FY26 Budget must take a multi-pronged approach. In the first instance, fiscal allocations should prioritise the Renewable Energy Service Company (RESCO) model, effectively transforming the prohibitive upfront costs into manageable operating expenses for lower-income households through innovative financial instruments and credit guarantees.

In the second instance, the Budget must expand the scope of production-linked incentives (PLI) across the solar module supply chain, addressing the critical supply-demand mismatch, where domestic manufacturing fulfils only 40% of



Amarendu Nandy

is Assistant Professor, Economics area, Indian Institute of Management Ranchi



Aayush Anand

is Executive, Bharat Sanchar Nigam Limited

The Budget should reflect the seriousness of the government in integrating climate competitiveness into India's fiscal framework

current requirements. This expansion would boost manufacturing capacity and create economies of scale, potentially reducing costs that are 65% higher for domestically manufactured panels than those imported to the country.

In the third instance, India's vast railway network offers untapped potential for renewable energy generation. Estimates suggest that the Railways' extensive land banks and track corridors could host up to 5 GW of solar and wind installations. The Budget should encourage innovative public-private partnership models to unlock this opportunity.

EU mechanism and India

Second, the European Union's Carbon Border Adjustment Mechanism (CBAM), which will take effect on January 1, 2026, necessitates urgent budgetary interventions to protect India's export competitiveness. India's total exports of CBAM products to the EU amount to \$8.22 billion annually and will likely face carbon levies ranging from around 20% to 50%.

This presents an existential challenge for India's Micro, Small and Medium Enterprises (MSME), which have a contribution of 30% of GDP and 45% of exports. The Budget can establish a dedicated 'Climate Action Fund', modelled after successful initiatives such as Japan's Green Transformation (GX) Fund for industrial decarbonisation, particularly across the most vulnerable export sectors. The Fund can also support the capacity-building initiatives for MSMEs to ensure proper compliance and reporting under CBAM.

Third, the Budget must accelerate India's transition to a circular economy. A recent study by the Council on Energy, Environment and Water estimates that the benefit of adopting a circular economy can yield an annual profit of ₹40 lakh crore (\$624 billion) for India by 2050 while reducing greenhouse gas emissions by about 44%. A weighted deduction of 150% on investments in recycling infrastructure and refurbishment technologies, complemented by accelerated depreciation benefits for circular economy assets, can encourage businesses to

invest in recycling and refurbishment technologies. The Budget should establish a sovereign green bond framework specifically for financing circular economy infrastructure.

On insurance products, green finance

Fourth, there is a strong need to strengthen climate resilience. India's insurance penetration remains worryingly low. According to the Insurance Regulatory and Development Authority of India (IRDAI) 2023-24 Annual Report, it has declined from 4% in FY23 to 3.7% in FY24. To address this challenge, the Budget could offer tax deductions to insurance companies on income from climate-linked policies and advocate lower Goods and Services Tax (GST) rates on premiums for insurance products specifically designed for climate resilience and disaster protection.

Finally, some estimates indicate that standardising green finance definitions could help build investor confidence and help India get part of the ₹162.5 trillion (\$2.5 trillion) needed to achieve the Nationally Determined Contributions by 2030. The Budget should allocate funds to build the institutional and technical infrastructure required to implement the climate finance taxonomy effectively, including for market readiness programmes, verification systems, and capacity building of financial institutions.

The Budget can further catalyse this transition by introducing differential tax treatment for taxonomy-aligned investments and committing to classify government expenditure according to green criteria.

Climate-linked economic policies are no longer peripheral but central to maintaining competitiveness in international trade and investment flows. With rising global demand for low-carbon goods and the increasing alignment of capital markets with sustainability metrics, India must act decisively and integrate climate competitiveness into its fiscal framework. The Budget will indeed signal the seriousness of the government's intent in this regard.

The views expressed are personal





An impression of WASP-127b shows its newly discovered supersonic winds. REUTERS

Astronomers spot ferocious winds on alien planet

Reuters

In the earth's upper atmosphere, a fast-moving band of air called the jet stream blows with winds of more than 442 km per hour, but they are not the strongest in our solar system. The comparable high-altitude winds on Neptune reach about 2,000 km per hour. Those, however, are a mere breeze compared to the jet-stream winds on a planet called WASP-127b.

Astronomers have detected winds howling at about 33,000 km per hour on this large gaseous planet, located in our Milky Way galaxy approximately 520 lightyears from the earth in a tight orbit around a star similar to our sun.

The supersonic jet-stream winds circling WASP-127b at its equator are the fastest of their kind on any known planet. "There is an extremely fast

WASP-127b is a type called a hot Jupiter, a gas giant that orbits very close to its host star. WASP-127b's diameter is about 30% larger than Jupiter, our solar system's largest planet

circumplanetary jet wind found on the planet. The velocity of the winds is surprisingly high," said astrophysicist Lisa Normann of the University of Göttingen in Germany, lead author of the study published on Tuesday in the journal *Astronomy & Astrophysics*.

More than 5,800 planets beyond our solar system, called exoplanets, have been discovered. WASP-127b is a type called a hot Jupiter, a gas giant that orbits very close to its host star. WASP-127b's diameter is about 30% larger than Jupiter, our solar system's largest planet. But its mass is only about 16% that of Jupiter, making it one of the puffiest planets ever observed.

"WASP-127b is a gas giant planet, which means that it has no rocky or solid surface beneath its atmospheric layers. Instead, below the observed atmosphere lies gas that becomes denser and more pressurized the deeper one goes into the planet," said astrophysicist and study co-author David Cont of Ludwig Maximilian University of Munich in Germany.

It orbits its star every roughly four days at just about 5% of the distance between the earth and the sun, leaving it scorched by stellar radiation. Like our moon is to the earth, one side of WASP-127b perpetually faces its star – the day side. The other side always faces away – the night side. Its atmosphere is about 2,060 degrees Fahrenheit (1,400 degrees Kelvin/1,277 degrees Celsius), with its polar regions less hot than the rest.

Like Jupiter, WASP-127b is composed mainly of hydrogen and helium, but its atmosphere also contains traces of more complex molecules such as carbon monoxide and water, which were identified in this research.

The fact that a hot Jupiter's day side is highly irradiated is believed to be a major driver of atmospheric dynamics.

"Answering the question of what drives these intense winds is challenging, as several factors influence wind patterns in exoplanet atmospheres," Mr. Cont said.

"The primary source of energy for these winds is the intense irradiation from the host star," Mr. Cont added, but other factors also play an important role in shaping the wind patterns.

Higher atmospheric wind speeds have been detected on two other exoplanets, in winds from their day side to night side, but not in winds flowing around the entire planet.



In Odisha, coal dust is clogging leaves, blocking carbon uptake

A recent study found that plants covered in mining dust absorbed 2-3 grams less carbon per square meter, emitting more carbon dioxide into the atmosphere, potentially exacerbating global warming; the dust also diminished the plants' capacity to release water vapour through transpiration

Sayantana Datta
SRI CITY

The Bengal Nagpur Railway had been tasked by the British Indian government with developing rail networks in eastern and central India. In 1900, when its workers were digging in Jharsuguda, now a district in Odisha, they stumbled upon large coal deposits. Nine years later, Jharsuguda's first coal mine was established and a century later the region was producing more than 15 million tonnes of coal in a year.

Coal is a fossil fuel produced by the decomposition of dead plants trapped in layers of soil. Around three-fourths of India's electricity is produced by coal-fired power plants. It is also critical in the iron, steel, cement, and fertiliser industries. India is one of the largest producers and consumers of coal worldwide, second only to China.

A patina of dust

In Jharsuguda, most coal mines are open-cast. Miners here start at the surface of the soil, removing soil and rocks to expose the coal deposits. This is more cost-effective than underground mining, which requires digging tunnels to access the deposits.

But open-cast mining pollutes the air more. The dust from blasting rocks, drilling holes in the ground, and transporting the coal and rock waste disperses through the air and can choke lungs when inhaled. The dust also settles on the leaves of plants nearby. When this happens, stomata – the small pores on leaves through which plants exchange carbon dioxide, water vapour, and oxygen – are clogged, affecting photosynthesis and temperature regulation in the plants.

Estimating the impact of mining dust on nearby vegetation requires researchers to collect a large number of dust-laden leaves from plants spread in the area surrounding a mine. With the dust spreading as far as 30 km away from the mining site, this is a Herculean task.

In a October 2024 study published in the *Journal of Geophysical Research: Biogeosciences*, researchers from the University of Southampton in the U.K. and the National Institute of Technology (NIT), Rourkela, reported using freely available data from several satellites to investigate how plants are affected by mining dust.

"Use of satellite data provides a great opportunity to efficiently monitor larger areas," Jadu Dash, study co-lead and University of Southampton professor of remote sensing, said.

The data suggest the dust has significant effects on the ability of vegetation to absorb carbon dioxide.

Amit Kumar Gorai, professor of mining engineering at NIT Rourkela and the other lead, added, "The study emphasises the importance of tackling dust pollution to protect vegetation and promote sustainable urban and industrial development."

Eyes in the sky

The study was performed by Avinash Kumar Ranjan, who undertook the research as a part of his doctoral research at NIT Rourkela.

He began by estimating the amount of



An open-cast coal mine in Jharkhand. UNIVERSITY OF SOUTHAMPTON/SPECIAL ARRANGEMENT

mining dust settling on leaves in areas surrounding coal mines in Jharsuguda. To do this, he used data from two satellites, Landsat-8 and -9, and two satellite clusters, Sentinel-2 and PlanetScope. The U.S. Geological Survey and NASA launched the Landsat satellites in 2013 and 2021 while the European Space Agency launched Sentinel-2B (which supplied data for the study) in 2017 and Planet Labs launched PlanetScope in 2016-2022.

Light falling on leaves is composed of different wavelengths: we can see some (blue, green, red) but not others (e.g. infrared). The leaves absorb some of these wavelengths and reflect the rest. Like a camera snaps our photographs by capturing the visible light reflected by our bodies, satellites can capture images of an area in different wavelengths using special instruments.

When dust settles on leaves, it changes how much of a certain wavelength of light the leaves reflect. This changes the images of an area captured by a satellite for that particular wavelength.

By comparing satellite images of areas farther from the coal mines with those that were closer, the researchers could estimate the amount of dust settling on leaves.

To validate their estimates, the team also visited two sites in Jharsuguda and collected 300 leaf samples with dust on their surfaces. In their laboratory, they weighed each dusty leaf, and brushed the dust off and weighed the leaf again. The difference between the two readings yielded another estimate of the amount of dust settling on plant leaves around the coal mines.

Finally, they used statistical methods to find that the actual readings were remarkably close to those calculated from

Around three-fourths of India's electricity is produced by coal-fired power plants. Coal is also critical in the iron, steel, cement, and fertiliser industries. India is one of the largest producers and consumers of coal worldwide, second only to China

satellite data, demonstrating that satellite images could be used to estimate the amount of mining dust settling on the local flora.

Narayan Kayet, a scientist at the Environmental Management and Policy Research Institute, Bengaluru, said the strength of the study lay in "the use of data from multiple satellites, which ensures comprehensive coverage and cross-validation of results."

Mr. Kayet has previously studied the amount of mining dust settling on plants surrounding coal mines in Jharkhand. He wasn't involved in the new study.

"Incorporating measurements from the field strengthens the credibility" of estimates derived from remote-sensing data, he added.

Dusty leaf, sick plant

The researchers also used statistical models to correlate the amount of dust on leaves with vital physiological processes. For the latter, they used readings from two other space-based instruments called ECOSTRESS and MODIS. Their data can be used to compute the temperature of plants in an area and the amount of water vapour they release, both in high resolution.

The team's models suggested that plants with one gram of mining dust on their leaves absorbed "approximately 2-3

grams less carbon per square meter of area," Mr. Gorai said.

While the amount might seem small for an individual plant, "when you multiply it across large areas of forests or vegetation near mining sites, the loss of carbon absorption becomes significant over time," he added.

Apart from being important for photosynthesis in plants, carbon absorption lowers the amount of carbon dioxide in the air. But when dust clogs the stomata, the plant absorbs less carbon and leaves more carbon dioxide in the atmosphere. This could worsen global warming over time.

Another effect of clogged stomata is that plants become less able to exude water vapour in a process called transpiration. Plants that transpire well are able to maintain their temperature better; those that don't become warmer.

"When leaves are too hot, they struggle to photosynthesise efficiently," Mr. Gorai explained. "Over time, this can lead to stunted growth or even the death of plants." This then leads to long-term damage to local ecosystems.

Mr. Dash and Mr. Gorai also said their study provides a quick and effective way for governments to monitor dust pollution in and around coal mines, identify hotspots, and implement timely measures to prevent long-term damage to surrounding vegetation and local ecosystems.

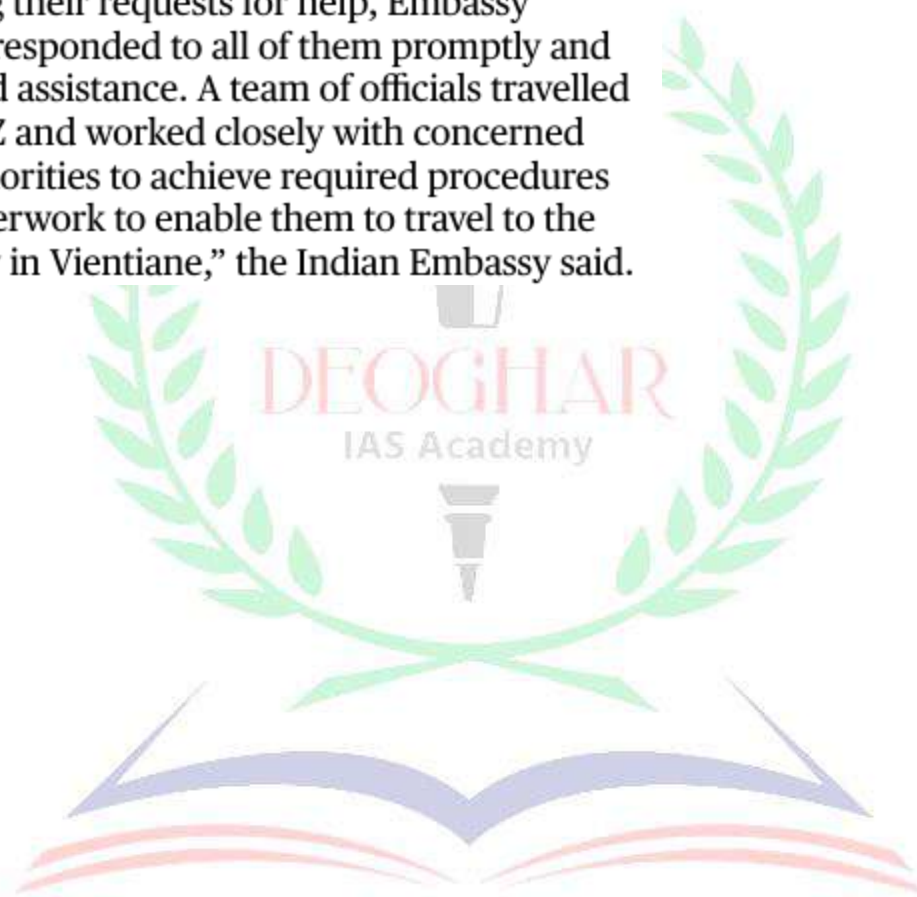
Such measures could include water sprays and dust barriers, Mr. Dash said.

Mr. Kayet agreed: "We need stringent measures to reduce dust emissions in mining regions to mitigate vegetation stress."

(Sayantana Datta is a science journalist and a faculty member at Krea University. dattasayantana95@gmail.com)

Indian Embassy rescues 67 from scam centres in Laos

The Indian Embassy in Laos has rescued 67 Indian youngsters from cyber scam centres in the Golden Triangle Special Economic Zone (GTSEZ) of the country. In a statement on Monday, the Indian mission maintained that the youngsters were “trafficked” and “duped” by dubious employment agencies. “Immediately after receiving their requests for help, Embassy officials responded to all of them promptly and extended assistance. A team of officials travelled to GTSEZ and worked closely with concerned Lao authorities to achieve required procedures and paperwork to enable them to travel to the Embassy in Vientiane,” the Indian Embassy said.



Indonesian naval delegation visits BrahMos office in Delhi, apprised of weapon system

The Hindu Bureau
NEW DELHI

Amid negotiations between India and Indonesia for the sale of BrahMos supersonic cruise missile systems, the Chief of Staff of the Indonesian Navy, Admiral Muhammad Ali, visited BrahMos Aerospace Private Ltd. here on Monday and "exchanged ideas and insights on further strengthening bilateral cooperation in the area of defence and strategy".

The company said on the social media platform X that the visiting delegation, headed by Admiral Ali, interacted with Jaiteerth R. Joshi, CEO and MD of BrahMos, and other



The Chief of Defence Staff, General Anil Chauhan, with Indonesian Navy chief Admiral Muhammed Ali in New Delhi on Monday. PTI

senior officials of the joint venture enterprise.

"The delegation was apprised of supersonic BrahMos weapon system and its formidable capabilities. During their interaction,

the two sides exchanged ideas and insights on further strengthening bilateral cooperation in the area of defence and strategy," it said.

During his visit, Admiral

Ali held bilateral interactions with Indian Navy chief Admiral Dinesh K. Tripathi to deepen maritime cooperation and strengthen ties between the two close maritime neighbours, the Indian Navy said in a statement.

Key points of discussion

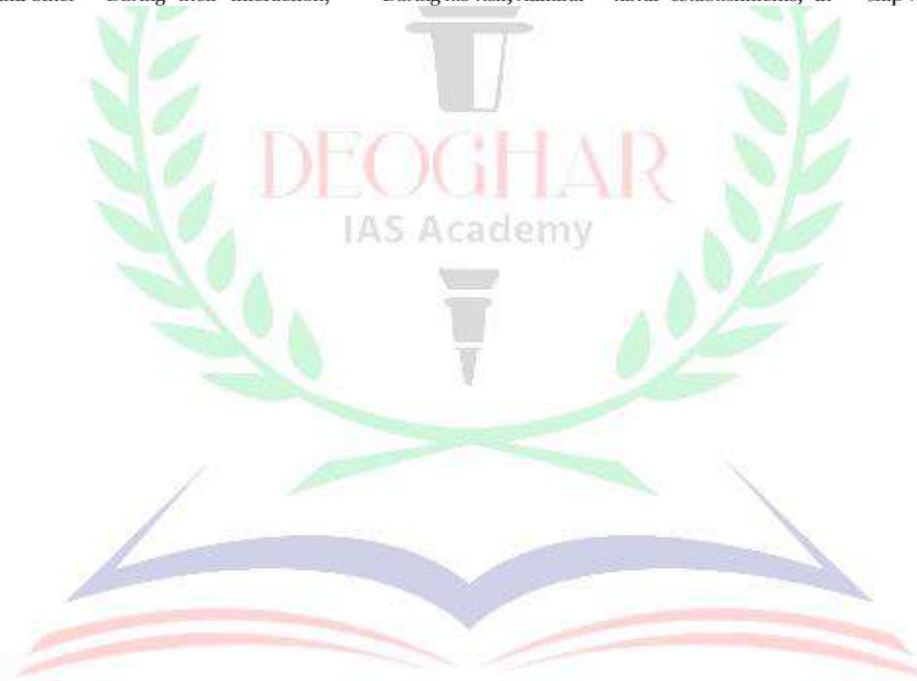
"The key areas of discussion between the two naval leaders included advancing joint initiatives like 'Exercise Samudra Shakti', strengthening operational collaboration, and addressing shared maritime challenges, including piracy and other illegal activities at sea."

Mr. Ali visited several naval establishments, in-

cluding the Information Fusion Centre-Indian Ocean Region (IFC-IOR) and the Weapons and Electronics Systems and Engineering Establishment.

He is on an official visit as part of the high-level delegation accompanying Indonesian President Prabowo Subianto, who was the chief guest at the Republic Day parade on Sunday.

The \$450-million deal for the BrahMos systems is in advanced stages of negotiations, and Indonesia will become the second export market of the missile system after the Philippines, which has signed a \$375-million deal in 2022 for three regiments of the anti-ship variant of the missile.



Mohan to head ISRO's liquid propulsion systems unit in Kerala

The Hindu Bureau

THIRUVANANTHAPURAM

The Indian Space Research Organisation (ISRO) has appointed M. Mohan Director of its Liquid Propulsion Systems Centre (LPSC) in Thiruvananthapuram.

He succeeds V. Narayanan, who took over as the ISRO Chairman earlier this month.

Mr. Mohan is currently Director (Projects) at the Vikram Sarabhai Space Centre (VSSC).

The ISRO issued his appointment order on January 25. Mr. Mohan was Director of the Human Space Flight Centre from June 2023 to June 2024. He has held various positions, including as Associate Director, VSSC (Research and



M. Mohan

Development), project director of the Geosynchronous Satellite Launch Vehicle (GSLV) and mission director of successful GSLV-F08/GSAT-6A and GSLV-F11/GSAT-7A missions in 2018. He was system leader of the Moon Impact Probe project for the Chandrayaan-1 mission. He hails from Alappuzha.

Uttarakhand adopts Uniform Civil Code

Ishita Mishra
NEW DELHI

Uttarakhand Chief Minister Pushkar Singh Dhami on Monday officially rolled out the Uniform Civil Code (UCC) for all residents of the State, except the Scheduled Tribes and natives who have migrated out of the State. With this, Uttarakhand has become the first Indian State to implement the UCC post-Independence.

The UCC Bill, passed by the State Assembly last February, bans practices such as *halala*, *iddat*, and *talaq* (customs related to marriage and divorce in Muslim Personal Law). It also ensures that women are given equal rights in matters related to property and inheritance.

The UCC mandates online registration of marriages, divorce and live-in relationships. A government portal – *ucc.uk.gov.in* – has been formed for the purpose. People can access records, register complaints and also upload their will on the portal. Mr. Dhami also registered his marriage on the portal.

“Under the able leadership of the respected Prime Minister Narendra Modi and Home Minister Amit Shah, our government has today implemented the UCC in Uttarakhand. Today is a special day for the people of this State as well as for all the countrymen,” Mr. Dhami said during the launch of the UCC portal. “I am confident that this stream of equality emanating from Uttarakhand will irrigate the entire country in the near future,” he added.

Beginning of new era

Termining the UCC the “beginning of a new era of equality and harmony”, Mr. Dhami added that his government had promised the “god-like” people that



Pushkar Singh Dhami

every citizen of the State would have equal rights, and the implementation of UCC was a reflection of the BJP’s commitment to achieve the resolution taken before the public.

According to a communique from the State government, the online portal created for the UCC registration has Aadhaar-based verification. An AI-based translation service will translate the content into 22 languages, including English. The portal has integrated data from across more than 13 government departments, including civic bodies, police and courts.

In view of the UCC rollout, the marriages that have taken place in Uttarakhand since March 26, 2010, will have to be registered in the government portal within the next six months. Marriages that have taken place after the implementation of the law should be registered within 60 days from the date of marriage.

While registering divorce or marriage annulment, people should enter details of marriage registration, decree of divorce or marriage annulment, court case number, date of final order, details of children, and copy of final order of the court.

The UCC portal allows people to register their will in three ways – by filling the form on the portal, by uploading handwritten or typed will, or by recording it in a three-minute video and uploading it.



India, China to resume direct flights, issue visas

Steps to rebuild ties announced as Vikram Misri meets Chinese Vice Foreign Minister in Beijing | Mansarovar pilgrimage to restart this summer; Wang calls for end to 'mutual suspicion and estrangement' | MEA says India-China Expert Level Mechanism will discuss resumption of provision of hydrological data

Sahasini Haidar
NEW DELHI

Three months after negotiating an end to the military stand-off at the Line of Actual Control (LAC), India and China agreed to concrete measures to resume direct flights, visas, people-to-people exchanges, and the Mansarovar Yatra for pilgrims this summer. They agreed to resume the dialogue on trans-border rivers and sharing of hydrological data that China has withheld for years.

Both sides committed to marking the 75th year of establishment of ties with a number of celebratory events this year, as Chinese Foreign Minister Wang Yi called for an end to the "mutual suspicion and estrangement" between the

two countries.

The decisions on reviving various measures were taken during a meeting between Foreign Secretary Vikram Misri and Chinese Vice Foreign Minister Sun Weidong in Beijing.

Modi-Xi meeting

"As agreed between Prime Minister Narendra Modi and President Xi Jinping at their meeting in Kazan in October, the two sides reviewed the state of India-China bilateral relations comprehensively and agreed to take certain people-centric steps to stabilise and rebuild ties," the Ministry of External Affairs (MEA) said, announcing that the technical officials and "relevant mechanisms" would now meet to take forward plans to resume direct flights between



Rebooting ties: Foreign Secretary Vikram Misri with his Chinese counterpart Wang Yi in Beijing on Monday. AP

India and China, the Mansarovar Pilgrimage in the "summer of 2025".

It said the India-China Expert Level Mechanism would discuss resumption of provision of hydrological data and "other cooperation pertaining to trans-border rivers", while the two sides would facilitate "people-to-people ex-

changes, including media and think tank interactions". Reports about the construction of a hydro-power project on the Brahmaputra in South Tibet (Yarlung Zangpo) have raised concern in Delhi.

The officials also held a discussion on economic and trade areas.

This is significant as des-

pite record trade levels, India and China have been levying restrictions on each other amidst the LAC tensions.

Trade curbs

While China had complained about the need for a "level playing field" over India's decision in 2020 to require Home Ministry clearance for investment from China and other land-border countries, denial of business visas, as well as raids on Chinese telecom companies, India has been worried about Chinese restrictions on pharmaceutical ingredients (API), high technology exports and transfers to India, as well as withholding critical equipment like Tunnel Boring Machines (TBMs).

"Specific concerns in the economic and trade

areas were discussed with a view to resolving these issues and promoting long-term policy transparency and predictability", the MEA statement added.

Mr. Misri's visit, which is understood to have been held before the official closure for the Chinese New Year, marks the "resumption" of the FS-Vice FM level bilateral dialogue mechanism, and follows meetings between Mr. Misri and Mr. Xi in October, meetings between the Foreign Ministers, Defence Ministers and Special Representatives, indicating that India and China have now resumed all regular bilateral discourse.

Officials however, declined to comment on whether the resumption of dialogue mechanisms would include an "infor-

mal summit" between Mr. Misri and Mr. Xi this year, as had been held in Wuhan in 2018 and Mamallapuram in 2020.

Mr. Misri, who travelled to China on Sunday, also met with Chinese Foreign Minister Mr. Wang, who is a Member of the Politburo of Communist Party of China (CPC)'s Central Committee and the CPC's Minister of the International Department Liu Jianchao during the visit.

According to a readout issued by the Chinese Ministry of Foreign Affairs, Mr. Misri had offered India's support for China's chairmanship of the Shanghai Cooperation Organisation (SCO) in 2025.

Mr. Misri is expected to attend the Head of State Summit slated for June this year.

