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As artificial intelligence gets real, firms move slow and steady to win the race

Companies are excited about the possibilities unlocked by generative AI in the wake of the dramatic arrival of ChatGPT two years ago; but with tasks of complex nature requiring human oversight, firms opt to head into 2025 with careful deliberation rather than rushing to transform their operation

Agence France-Presse
WASHINGTON

In the wake of ChatGPT's dramatic arrival two years ago, companies are excited about generative AI's possibilities but heading into 2025 with careful deliberation rather than rushing to transform their operations.

The Channel Tunnel, one of the world's most strained travel checkpoints, presents a compelling example of AI's current limitations and practical applications.

Each day, 400 of the world's largest locomotives cross the tunnel linking France and Britain, with nearly 11 million rail passengers and 2 million cars carried through annually.

For GetLink, the company managing the 800-metre-long trains, caution around AI implementation remains paramount.

"We are in a highly regulated business. We are not kidding around. These are very strict procedures," explained Denis Coutrot, GetLink's Chief Data and AI officer.

Rather than controlling train operations, their AI primarily handles more mundane tasks like searching through rules and regulations.



In developer mode: An expert predicts that most industries will have some form of AI-driven operations within the next decade, but complete AI autonomy remains distant. ISTOCKPHOTO

The legal sector, initially viewed as prime for AI disruption, tells a similar story.

"ChatGPT is obviously incredible. But it is really quite hard to apply it in your day-to-day workflows in a way that is impactful," noted James Sutton, founder and CEO of Avantia Law.

While AI excels at basic tasks like searching legal databases and generating simple summaries, more complex work requires careful human oversight.

Mr. Sutton explained

that AI's inconsistency remains a challenge: "One contract I can put in and the AI kicks it out perfectly. Another one will be 40% right. That lack of certainty means lawyers still have to verify everything."

The tech industry presents a more aggressive adoption curve.

Google reports that 25% of its coding is now handled by generative AI.

JetBrains CEO Kirill Skrygan predicts that by next year, AI will handle about 75-80% of all coding tasks.

"Developers are using AI as assistants to generate code, and these numbers are growing every day," said Mr. Skrygan at the Web Summit in Lisbon.

"The next level is coding agents that can resolve entire tasks usually assigned to developers."

He suggested that over time, these agents could replace virtually all of the world's millions of developers.

Visual design industries, particularly fashion, are seeing significant impact from AI image generators

like DALL-E, Midjourney, and Stable Diffusion.

These tools are already transforming work habits and shortening time-to-market for new collections.

Hesitant practitioners

In healthcare, despite a study showing AI's potential – including one where ChatGPT outperformed human doctors in diagnosis from case histories – practitioners remain hesitant to fully embrace the technology.

"They did not listen to AI when AI told them things they did not agree with," Dr. Adam Rodman, who carried out the study, told the *New York Times*.

Companies face a complex calculation between innovation, prudence and how much they are willing to spend.

"It will take some time for the market to sort out all of these costs and benefits, especially in an environment where companies are already feeling hesitation around technology investments," observed Seth Robinson, VP for industry research at CompTIA.

Anant Bhardwaj, CEO of Instabase, believed that AI's limitations were real but temporary.

"The real new innovation, like new physics or

new ways of space exploration, those are still beyond the reach of AI... If people think that AI can solve every single human problem, the answer today is 'No.'"

While AI excels at processing existing patterns and data, Mr. Bhardwaj argued it lacks the human curiosity needed to explore truly new frontiers.

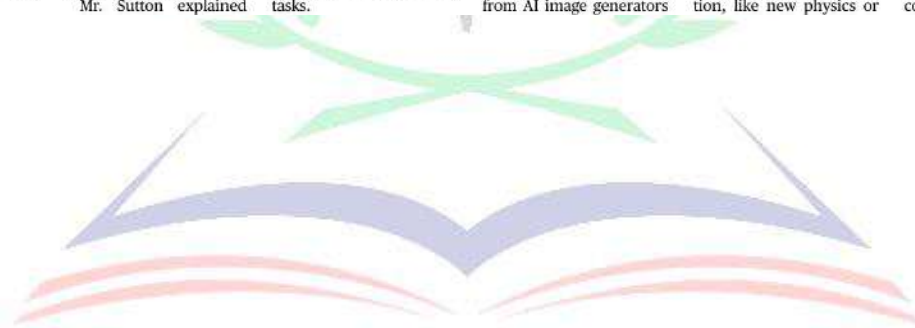
But he predicted that within the next decade, most industries will have some form of AI-driven operations, with humans in the backseat, but complete AI autonomy remains distant.

Still, the disruption caused by AI is coming hard and fast, and countries must be prepared.

"White collar process work is hugely impacted, that's already happening. Call centers is already happening," Professor Susan Athey of Stanford University told a statistics conference at the IMF.

Ms. Athey, an economist of the tech industry, expressed worry about regions where a core profession such as call centers risked being swept away by AI.

"Those are ones I would really watch very carefully. Any country that specializes in call centers, I'm very concerned about that country," she said.



Chennai gets electronic stability control test track

The Hindu Bureau

CHENNAI

ZF Commercial Vehicle Solutions (CVS) India inaugurated a state-of-the-art electronic stability control (ESC) test track in Chennai.

The track provides a controlled environment for rigorous testing of vehicle stability, agility, and handling performance. Certified by TUV Rheinland and ARAI, it is equipped to test a wide range of vehicles, from two-wheelers to heavy commercial vehicles.

The track will also be available for customers and third parties enabling



the industry to conduct their own testing at the facility, the company said in a statement.

“This state-of-the-art facility will enable us to accelerate the development and testing of advanced safety systems, pushing the boundaries of vehicle safety, said MD P. Kaniappan.

SC ruling on socialism, secularism

What was the original Preamble and how has it evolved? What has been the court's stand earlier and how has it changed? What was the current case about? What bearing will it have on the society?

EXPLAINER

Rangarajan R

The story so far:

A Division Bench of the Supreme Court led by the Chief Justice of India dismissed pleas challenging the inclusion of the words 'socialist' and 'secular' in the Preamble to our Constitution.

What is the history of Preamble?

The original Preamble adopted on November 26, 1949, declared India a sovereign, democratic, republic. Our Constituent Assembly consciously avoided the word 'socialist' as they felt that declaring the economic ideal of a country in its Constitution's preamble was not appropriate. People should decide what suits them according to time and age.

Likewise, Indian secularism is different from western secularism. In the latter, the state and religion are strictly separated and the government does not interfere in religious affairs. However, in India, the state enjoys the power to regulate the economic, financial, political and secular aspects associated with religious practice. It can also provide for social welfare and reform in religious practices. Further, various provisions of the Constitution that include right to practise any religion, non-discrimination on the basis of religion in any affairs of the state embodied the 'secular' values of our Constitution. Hence, in the Constituent Assembly, the amendment to introduce the word 'secular' in the Preamble was not accepted.

In *Berubari* case (1960), the Supreme Court opined that the Preamble is not a part of the Constitution and thus not a source of any substantive power. Subsequently, in *Kesavananda Bharati*



Guiding book: Indian National Congress (INC) party workers carry a model of the Indian Constitution during a rally on the occasion of Constitution Day celebrations in Kolkata on Tuesday. AP

case (1973), the Supreme Court reversed its earlier opinion and said that the Preamble is part of the Constitution and that it should be read and interpreted in the light of the vision envisioned in the Preamble. It also held that the Preamble is subject to the amending power of Parliament as any other provision of the Constitution. The 42nd Constitutional Amendment in 1976 inserted the words 'Socialist', 'Secular' and 'Integrity' in the Preamble.

What was the current case?

The current case was filed by former Rajya Sabha MP Subramanian Swamy, advocate Ashwini Upadhyay and others. Mr. Upadhyay and others had opposed the insertion of the words 'socialist' and 'secular' in the Preamble. They argued that these were included during the Emergency and forced the people to follow specific ideologies. They felt that since the date of adoption by the

Constituent Assembly was mentioned in the Preamble, no additional words can be inserted later by Parliament. Mr. Swamy was of the view that subsequent amendments to the Constitution including the 44th Amendment in 1978 during Janata Party rule after emergency had supported and retained these two words. Nevertheless, he was of the view that these words should appear in a separate paragraph below the original Preamble.

What did the court rule?

The court dismissed the pleas and held that 'socialism' and 'secularism' are integral to the basic structure of the Constitution. It observed that the Constitution is a 'living document' subject to the amendment power of Parliament. This amending power extends to the Preamble as well and the date of adoption mentioned in it does not restrict such power. The court opined that 'socialism'

in the Indian context primarily means a welfare state that provides equality of opportunity and does not prevent the private sector from thriving. Similarly, over time India has developed its own interpretation of 'secularism'. The state neither supports any religion nor penalises the profession and practice of any faith. In essence, the concept of secularism represents one of the facets of right to equality.

Why is it important?

The initial years after Independence fostered 'democratic socialism' characterised by centralised planning and many industries being established by the state. The period of 1960s and 70s saw nationalisation of banks and insurance, higher tax rates and various regulations. The economy, though declared as mixed economy where public and private enterprises would co-exist, displayed the characteristics of classical socialism with license controls and regulations. Starting from 1991, our economy has evolved from such socialistic pattern to a market-oriented model. The ensuing growth has uplifted vast majority of people from abject poverty in the last three decades. However, there is also growing inequality that needs to be addressed. As the court observed, our socialism continues to address the needs of the poor through schemes such as MGNREGA, subsidised food grains, direct benefit transfers for women and farmers etc. Hence, it is imperative that such socialism continues to guide the actions of the state for the welfare of the needy while private enterprise flourishes resulting in increased employment and strong economic growth. The spirit of our 'unity in diversity' should be equally preserved by upholding the values of secularism.

Rangarajan R is a former IAS officer and author of 'Polity Simplified'. Views expressed are personal.

THE GIST

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Between hope and hurdles on the high seas

India's recent signing of the Biodiversity Beyond National Jurisdiction (BBNJ) Agreement – better known as the High Seas Treaty – has drawn both praise and scepticism from maritime observers. Hailed as a landmark step in ocean governance, the treaty seeks to protect marine ecosystems and promote the sustainable use of resources in areas beyond national jurisdiction. However, despite its laudable intentions to address critical gaps in international maritime regulation, the pact's structural complexities and potential challenges warrant examination.

As the third implementing agreement under the United Nations Convention on the Law of the Sea (UNCLOS), the BBNJ treaty follows earlier accords on deep-sea mining and fisheries management. Its provisions focus on three objectives: conserving marine biodiversity, ensuring equitable sharing of benefits from marine genetic resources, and mandating environmental impact assessments for harmful activities. Yet, like many ambitious multilateral agreements, it risks faltering against geopolitical rivalries, jurisdictional overlap, and weak enforcement mechanisms.

Fraught with challenges

The treaty's ambitious goals are tempered by its lack of a clear implementation roadmap. With only 14 of its 104 signatories having ratified the agreement, it remains far from the required threshold of 60 needed to come into force. Much of the hesitation stems from disputes over maritime territories, particularly in regions such as the South China Sea, where overlapping claims complicate consensus on Marine Protected Areas (MPAs). Southeast Asian nations remain divided on whether high-seas "national parks" could affect territorial claims or limit economic opportunities for coastal communities that depend on



Abhijit Singh

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India's signing of the Biodiversity Beyond National Jurisdiction Agreement has won praise but there is also scepticism as there are structural complexities and challenges

marine resources. Bay of Bengal states echo similar apprehensions about MPAs affecting livelihood and resource access, underscoring the broader regional hesitations surrounding the treaty's implementation. Critics argue that the treaty's emphasis on the "high-seas principle" risks overshadowing the "common heritage of mankind" concept, which prioritizes preservation over access. One of the treaty's most contentious provisions involves marine genetic resources. The treaty obligates nations to share the profits derived from exploiting these resources through a global fund. However, without robust accountability measures, this provision risks being undermined by wealthier nations underreporting their activities. The pact also risks conflicting with regimes like the Convention on Biological Diversity, potentially disadvantaging smaller states and fragmenting enforcement.

Capacity-building and technology transfers present yet another challenge for low and middle-income countries. The treaty calls for equitable partnerships in ocean science, but lacks enforceable mechanisms, leaving less capable nations vulnerable to being sidelined. Asymmetry threatens to perpetuate inequalities in maritime research and governance.

The treaty's focus on the high seas overlooks the interconnectedness of marine ecosystems, where harmful activities in EEZs often cascade into international waters. The 2021 *X-Press Pearl* disaster off Sri Lanka, which spilled hazardous chemicals into the Indian Ocean, is a stark reminder of how localised incidents can have global repercussions. Similarly, overfishing within the EEZs in West Africa has depleted fish stocks far beyond national jurisdictions, exacerbating marine resource scarcity on the high seas.

While the BBNJ Agreement aspires to reshape global ocean

governance, its potential hinges on bridging the gap between ambition and action. Its greatest limitation lies in failing to reconcile high-seas governance with coastal regulations, assuming international waters can be managed in isolation despite the impact of pollution, overfishing, and habitat destruction in EEZs.

More troubling is the reluctance of coastal states to assume greater responsibility for activities within their waters. While the treaty mandates environmental impact assessments (EIAs) for planned activities, it remains silent on the damaging harms during oil and gas exploration – that the pact does not cover – and which constitutes an important economic interest of states. This gap, compounded by the disinclination of states to accept an international review of EIAs, exposes the inherent weaknesses in the treaty's enforcement framework, particularly in regions with weak institutional capacity and conflicting domestic and international legal standards.

Bridging the divide

For the High Seas Treaty to succeed, it must overcome its structural and political limitations. This requires a radical shift in maritime governance – one that integrates high-seas and coastal regulations into a cohesive framework. Coastal states, particularly those in the Global South, need incentives to align their domestic laws with international norms, while wealthier nations must commit to providing technical and financial support to ensure the treaty's benefits are equitably shared.

The treaty's success ultimately hinges on fostering a collective commitment among nations to safeguard the oceans as a shared global resource. Without political consensus, clear strategies, and enforceable mechanisms, the BBNJ risks becoming an ineffective instrument – an outcome the oceans, already under immense stress, cannot afford.

Timely reiteration

Verdict on amendments to Preamble is a reminder of worth of secular values

The Supreme Court of India has done well to rebuff an attempt to question the characterisation of the country as 'secular' and 'socialist' in the amended Preamble to the Constitution. Sections of the right wing have been uneasy for long about the identification of secularism as one of the attributes of India. This opposition has acquired traction among those who see the combination of the state not favouring or opposing any religion and the constitutional protection for minorities as something that renders the polity "pseudo-secular". The original assumption of the makers of the Constitution was that the Constitution – with its emphasis on equality before law and equal treatment of all sections, besides the incorporation of the right to profess, practise and propagate any religion and freedom of belief and conscience in the fundamental rights chapter – is inherently secular. In terms of economic policy, Dr. B.R. Ambedkar opposed amendments to include the word 'socialist' by arguing that the Constituent Assembly should not tie down future generations to any particular form of economy. Therefore, the words did not form part of the Preamble adopted along with the Constitution in 1949, but were controversially added through the 42nd Amendment enacted during the Emergency. However, that may not be reason enough for the courts to strike down their inclusion based on writ petitions filed in 2020, about 44 years after the amendment.

The Court, in *S.R. Bommai* (1994), ruled that secularism is a basic feature of the Constitution. In another case, it said: "Secularism essentially represents the nation's commitment to treat persons of all faiths equally and without discrimination." Regarding the term 'socialist', it is clear that its presence in the Preamble has not been an impediment to adoption of laws or policies and practices that open up sectors of the economy to open market competition. As the Bench of Chief Justice of India Sanjiv Khanna and Justice Sanjay Kumar has pointed out, India has developed its own interpretation of secularism, "wherein the State neither supports any religion nor penalises the profession and practice of any faith". Similarly, the term 'socialism' embodies "the principle of economic and social justice, wherein the State ensures that no citizen is disadvantaged due to economic or social circumstances". The Court has not countenanced the argument that the inclusion of these words came during the Emergency, when Parliament's term was extended, noting that this aspect was debated in Parliament in 1978 when the 44th Amendment Act was considered. As the Constitution completes 75 years of existence, the verdict upholding the inclusion of the terms 'secular' and 'socialist' amounts to a timely reiteration of these fundamental attributes.



From a republic to a republic of unequals

Constitution day on November 26, 2024 marked 75 years of the adoption of the Constitution and constitutional governance in independent India. The Constituent Assembly debates show the intellectual engagement of leaders from a spectrum of ideologies, right wing to left wing, in building a single political identity that was accommodative of the interests and rights of multiple cultural groups.

The Constitution-makers accepted the liberal framework, but wanted the state to play a positive role in intervening and reducing inequality due to poor social indicators at the time of Independence. With liberalism, as a political ideology, there was an insistence that there should be freedom for citizens to carry out activities without any state interference. There was the belief that only in a free environment could human potentialities, be they intellectual, moral and physical, be realised. Thus, liberty became the core value of liberalism.

The Indian Constitution makers agreed to create a liberal political state in India. But considering the social and economic inequalities, they felt that a complete withdrawal of the state would perpetuate the existing inequalities and worsen it further. So, it was that the state should be given a positive role to intervene and create conditions for everyone to participate equally in the development process. Thus, affirmative action and reservation policies to treat unequals in an unequal manner to achieve the constitutional vision of equality have become an important aspect of the Indian Constitution.

An egalitarian outlook

Its vision of equality aims to create an egalitarian society to minimise economic inequalities among the people. Reflecting John Rawls' egalitarian liberalism, including the three important principles of equal basic liberties, equal opportunities and difference, the Constitution aims to create an egalitarian society. The fundamental rights in Part III and the Directive Principles of State Policy (DPSP) in Part IV of the Constitution reflect all the above three principles of egalitarian liberalism. Thus egalitarian liberalism aims to reduce inequality and not create an absolute equal society. Article 38(2) of DPSP insists that the state shall strive to minimise the inequalities of income and eliminate inequalities in status, facilities and opportunities. The constitutional ideological framework lays emphasis on reducing inequalities and creating an egalitarian society based on equal opportunities and facilities through state intervention. Further, Article 39(c) emphasises that the economic system ought not to result in a concentration of wealth and means of production to the common detriment.

The Supreme Court of India has reiterated this principle in many of its judgments till the end of



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the 1990s. In *D.S. Nakara & Others vs Union Of India* (1982), the Court said that the basic framework of socialism in the Constitution is to provide a decent standard of life to the working people and social security from cradle to grave, reiterating the role of the welfare state in India. In *Air India Statutory Corporation vs United Labour Union & Ors* (1996), the Court said that the ideological aspects of the Indian Constitution found in the Preamble, Fundamental Rights and DPSP aim to establish an egalitarian social order, protecting social and economic justice and the dignity of individual by providing equality of status and opportunities.

In *Samatha vs State of Andhra Pradesh & Ors.* (1997), the Court interpreted that the meaning of the word "socialism" in the Constitution is to reduce inequalities in income and provide equal opportunities and facilities to create an egalitarian social order. Justice V.R. Krishna Iyer's interpretation of Article 39(b) of the DPSP, in *State Of Karnataka And Anr Etc vs Shri Ranganatha Reddy & Anr. Etc.*, that public and private resources fall within the ambit of community resources, was in line with the constitutional ideology of creating an egalitarian society by strengthening the state's power of redistribution of resources for common good towards reducing inequality.

But recently, the Court overturned this interpretation without locating it within Article 39(c), which empowers the state to intervene and regulate the economic system to prevent the concentration of wealth in the hands of a few towards creating an egalitarian society.

Economic reforms and inequality

After the adoption of neoliberal economic reforms in India, the constitutional ideology took a back seat and the idea of a welfare state as envisaged in the Constitution has withdrawn its commitments towards creating an egalitarian society. Lucas Chancel and Thomas Piketty from the Paris School of Economics have documented the rising inequality in India in their work, "Indian Income Inequality, 1922-2015: From British Raj to Billionaire Raj?" (2019).

Their research shows that the top 1% of earners had a share of less than 21% of total income in the 1930s. But after Independence, due to welfare state intervention, based on constitutional ideology, this gap reduced where the top 1% earners had a share of 6% of the total income in the 1980s.

After the implementation of neoliberal reforms in the 1990s, there were major structural changes that happened in the Indian economy, which prioritised private capital investment and a slow withdrawal of the welfare interventionist state. The state took the positive role of creating and strengthening markets rather than working towards creating an egalitarian society, as envisaged in the Constitution. As a consequence

of this, the top 1% income has reached 22% of the total income pushing back to an inequality situation worse than that in the pre-Independence period. They reiterated this inequality status in their recent research in 2024 emphasising that the top 1% of income and wealth shares have reached 22.6% and 40.1% by 2022-23, which is considered very high.

The "State of Inequality in India Report" (2022), prepared by the Institute for Competitiveness (commissioned by the Economic Advisory Council to the Prime Minister), highlighted the Periodic Labour Force Survey 2019-20, which recorded that average monthly wages of ₹25,000 (₹3 lakh an annum) is being earned by the top 10% and the remaining 90% earn less than ₹.25,000 a month. This shows extreme inequality and how the majority are being pushed into poverty, violating constitutional ideology.

An overlap with social inequality

Further, the report titled "Towards Tax Justice and Wealth redistribution in India" (2024) by the World Inequality Lab at the Paris School of Economics, has brought in evidence to show how economic inequality and social inequality overlap in India. By 2022-23, 90% of the billionaire wealth was held by the upper castes in India. Scheduled Tribes are not present in billionaire wealth. Other Backward Classes (OBC) have a mere 10% presence and Scheduled Castes have a 2.6% representation in billionaire wealth. The report further emphasises that between 2014 and 2022, the OBC share has reduced from 20% to 10% and upper caste share has increased from 80% to 90% in billionaire wealth. The upper castes are the only group which owns wealth more than its proportion of population, reiterating how social capital and economic advantages are overlapping in India. Further, Oxfam International highlights the rise in the number of billionaires from nine in the year 2000 to 119 in 2023. It further compares income inequality and shows that it will take 941 years for a minimum wage earner to earn what a top corporate executive earns a year in India.

The constitutional vision of creating an egalitarian social order by minimising income inequality and eliminating social inequality is under threat from the neoliberal ideological order. Violating the constitutional ideology, inequality levels are widening, strengthening wealth concentration among the few. Further, social inequality overlaps with economic inequality to give the upper castes a greater advantage in contemporary India. Constitution Day has passed, but there is an opportunity for us to critically evaluate our political and economic practices within the constitutional framework, to assess our achievements and failures, reiterating Babasaheb's words that social and economic inequality will put political democracy in peril.

The neoliberal ideological order shadows the constitutional vision of creating an egalitarian social order in India



Six decades since Thumba launch, slew of private entities prepare for flight

The Departments of Space and of Biotechnology have signed agreements to conduct biological experiments on the forthcoming Bharatiya Antariksh Station; while researchers will be able to conduct experiments on other missions as well, the agreement pertains to experiments onboard the station

Pradeep Mohandas

November 21 was 61 years since the birth of the Indian space programme. On this date in 1963, scientists launched a Nike-Apache sounding rocket from Thumba in Kerala. These rockets helped the Indian Space Research Organisation (ISRO) master the solid propellant technology powering India's launch vehicles today. Around the same time as this anniversary, India launched its first satellite onboard a SpaceX rocket even as multiple Indian private sector entities geared up for launches of their own.

Launches of merit

NewSpace India, Ltd. launched the 4,700-kg GSAT-N2/GSAT-20 satellite onboard a SpaceX Falcon 9 rocket from Florida. N2 wasn't launched onboard an Indian launch vehicle because its weight exceeded the payload capacity of the country's most powerful rocket, the LVM-3, which can place satellites weighing up to four tonnes in the geostationary transfer orbit (GTO). INSAT-1D was the last such satellite launched from Florida, in 1990.

GSAT-N2 is a Ka-band high throughput communication satellite built by ISRO to enhance broadband services in underserved areas, including the northeast, Andaman & Nicobar Islands, and Lakshadweep. It will also support services like in-flight internet connectivity and the Smart Cities Mission.

The satellite was placed in a GTO with a perigee of 250 km, an apogee of 59,730 km, and at a 27.5° inclination. From here, the satellite will use its thrusters to move to a geostationary orbit at 63° E longitude over the next few days.

Next, ISRO is preparing to launch its PSLV-C59 mission bearing the European Proba-3 mission. The Polar Satellite Launch Vehicle (PSLV) will fly in its extended length configuration (XL), which was last used to launch Aditya-L1 in September 2023.

The twin Proba spacecraft to study the Sun arrived in Chennai on November 6 and will be integrated with the launch vehicle. Liftoff is currently scheduled for 4 p.m. IST on December 4.

India's astronaut-designate Shubhanshu Shukla, who is set to fly to the International Space Station in 2025, is undergoing training at the European Space Agency's European Astronaut Centre. This part of the training is to familiarise astronauts-to-be with the European modules of the space station.

From the private sector

Four Indian private companies are preparing to launch their payloads/satellites into orbit.



A Nike-Apache two-stage rocket on its launcher at Thumba, Kerala. THE HINDU ARCHIVES

Pixel, which is Indian-American, unveiled 'Fireflies', its six hyperspectral satellites expected to be launched early next year. Each satellite weighs around 50 kg, has a native 5 m spatial resolution, and scans 40-km swaths for data in more than 150 spectral bands. These satellites constitute the first batch in what is eventually expected to become a constellation of 24 satellites. These satellites are capable of providing data that can help detect crop diseases, water-stressed areas, real-time deforestation, and ocean pollution early.

Second, GalaxEye Space is flying its "It's NOT a Satellite, It's Just a Tech Demo" on board the PSLV's Orbital Experimental Module (POEM) platform. This is when the final stage of a PSLV finishes deploying its payload and enters earth orbit, becoming an orbital platform where onboard instruments can run experiments. The Tech Demo will test subsystems of a synthetic aperture radar (SAR).

PierSight Space will also fly a mission on a PSLV POEM called 'Varuna', which will demonstrate a deployable reflectarray antenna and test SAR and aeronautical information service avionics in orbit.

HEX20 will fly its 'Nila' satellite onboard SpaceX's Transporter 13 mission in February 2025. 'Nila' is a 5-kg cubesat that can host different payloads and provide data-processing services. A ground station will be built in Thiruvananthapuram, Kerala, to control and receive data from the satellite.

India recently launched its first satellite onboard a SpaceX rocket even as multiple Indian private sector entities geared up for launches of their own

Catalyx Space's SR-0 satellite launched onboard the third developmental flight of the Small Satellite Launch Vehicle mission re-entered the earth's atmosphere on November 3. The company announced the satellite had achieved all its objectives in its three-month lifespan.

AAKA Space Studio launched India's first Space Analog Mission in Leh, Ladakh, in collaboration with the ISRO Human Spaceflight Centre, IIT-Bombay, and the University of Ladakh. The site was chosen for its similarity to surfaces on the moon and Mars.

One person from AAKA Space Studio will stay in the habitat in Leh for 21 days to test habitat sustainability, life-support systems, and the human experience of isolation.

SatSure is working with the Ministry of Electronics and Information Technology for "automated image feature extraction models for building footprints, roof type, roads, and water bodies among other classes for more than two lakh villages". This is the Indian government's largest programme to map rural property. Drones under the government's 'Swamitva' programme will capture images of 3-5 cm resolution and SatSure will use its machine-learning tools

developed for satellite data to extract and classify the relevant features.

Space science updates

India celebrated its full membership of the Square Kilometre Array Observatory (SKAO), an international effort to build the world's most advanced radio telescope in Australia and South Africa. India will contribute cash as well as advanced electronics and engineering for telescope components in exchange for scientific data collected by the telescope.

The first scientific result from the Visible Emission Line Coronagraph onboard the Aditya-L1 spacecraft was published in the *Astrophysical Journal Letters*.

A team led by researchers at the Indian Institute of Astrophysics, Bengaluru, used data from the coronagraph to accurately predict the time of a coronal mass ejection on July 16. Coronal mass ejections affect satellites in orbit, electricity grids on the ground, and radio communications when they blow past the planet.

Finally, the Departments of Space and of Biotechnology have signed agreements to conduct biological experiments on the forthcoming Bharatiya Antariksh Station. While researchers will be able to conduct experiments on other missions (including the uncrewed Gaganyaan flights), the agreement pertains to experiments onboard the Indian space station. (Pradeep Mohandas is a technical writer and space enthusiast in Pune. pradeep.mohandas@gmail.com)

THE GIST

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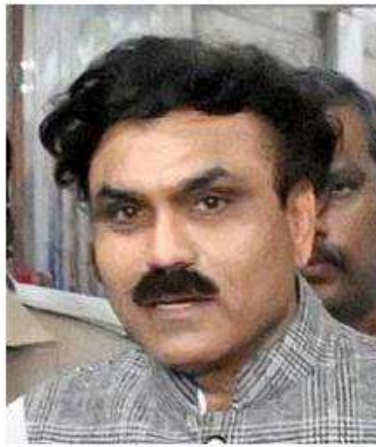
Commissions for SCs, STs, OBCs, minorities discuss their 'common issues'

Abhinay Lakshman

NEW DELHI

At a joint meeting on Tuesday, the National Commissions for Scheduled Castes, Scheduled Tribes, Other Backward Classes, and Minorities discussed "common issues" they faced, which included officials evading summonses and organisations refusing to follow recommendations by getting stay orders from courts. Some representatives said that this amounted to interfering with the powers of the Commissions to act as a civil court.

Representatives of the National Commission for Safai Karmacharis (NCSK) were also present at the interaction called by the National Commission for Scheduled Castes (NCSC). NCSC chief Kishor Makwana



Kishore Makwana

na said all Commissions will soon send a joint memorandum to the government over the issues with recommendations. This will include suggestions to empower the Commissions to enforce recommendations to a certain extent, according to multiple officials who attended the meeting.

At the meeting, the National Commission for

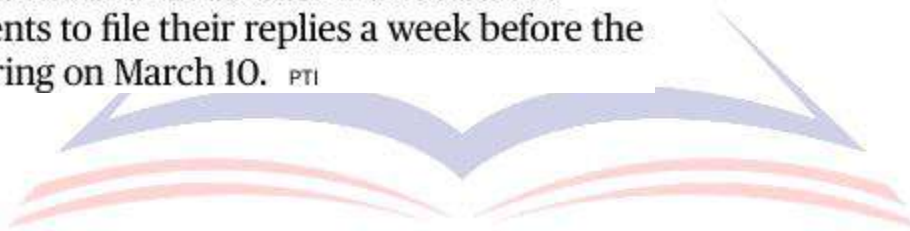
Scheduled Tribes brought up a recent instance of officials of the Tirumala Tirupati Devasthanams (TTD) avoiding notices issued by it during a review of the organisation by way of getting a high court stay, one official said. "There are a lot of complaints of ST people in the TTD that have to be addressed like partiality, problems with roster implementation, etc. The Commission is also acting as a civil court, the courts must see this and not issue stay orders immediately," an official who was at the meeting told *The Hindu*.

Another source said that other Commissions spoke of public sector organisations and banks delaying the implementation of its recommendations in promotions and appointments.



NGT issues notice to Centre on expansion of glacial lakes

The National Green Tribunal (NGT) has issued notice to the Centre and others regarding the rapid expansion of the Himalayan glacial lakes, raising concerns over the increasing risk of natural disasters. The NGT took *suo motu* cognisance of a news report showing about 10.81% increase of the glacial lakes in the last 13 years due to the rising temperatures. As per the report, the melting of glaciers paved way for larger glacial lakes, which held more water and, in turn, increased the risk of natural disasters such as floods and landslides. It directed the respondents to file their replies a week before the next hearing on March 10. PTI



A 'nation-first' spirit will keep Constitution alive, says Modi

Calling the document a 'guiding light', PM described it as a 'living stream' that has lived up to the needs and expectations of the country; he says the government has strengthened constitutional values by taking a host of welfare measures

Sandeep Phukan
NEW DELHI

The spirit of "nation first" will keep alive the Constitution for centuries to come, Prime Minister Narendra Modi said on Tuesday as the government organised multiple events to start a year-long celebration to commemorate the 75th anniversary of the adoption of the Constitution.

Addressing an event at the Supreme Court to mark Constitution Day, the Prime Minister described the Constitution as a "living stream" that has lived up to the needs and expectations of the country, including the challenge of Emergency in 1975.

Mr. Modi hailed the Constitution as a "guiding light" at a time of transformation for India and asserted that his government has strengthened constitutional values by taking a host of welfare measures to bring social and financial equality.

The Prime Minister said the Constitution has now been fully implemented in Jammu and Kashmir and



Grand fete: Prime Minister Narendra Modi addressing the 75th Constitution Day programme at the Supreme Court on Tuesday. ANI

Constitution Day was celebrated there for the first time, in an apparent reference to the dilution of special status of Jammu and Kashmir under Article 370.

Terror attacks

Mr. Modi also paid homage to the victims of the 26/11 Mumbai terror attacks, and said that the country has resolved that all terror groups challenging its security will be given a befitting reply.

Chief Justice of India Sanjiv Khanna, Law Minis-

ter Arjun Ram Meghwal, Supreme Court Bar Association president Kapil Sibal and Bar Council of India chairman Manan Kumar Mishra were among those who addressed the event.

Recalling the words of former President Rajendra Prasad in his concluding address to the Constituent Assembly on November 26, 1949, Mr. Modi said he (Mr. Prasad) had stated that India did not need anything more than a group of honest people

who would keep the country's interests above their own.

"This sentiment of 'nation first' will keep alive the Constitution for centuries to come," the Prime Minister said. His statement is politically significant as it comes against the backdrop of the relentless attack by the Leader of the Opposition in the Lok Sabha, Rahul Gandhi, on the BJP, alleging that the ruling party wanted to "destroy the Constitution".

'New heights'

"Our Constitution makers knew that India's aspirations, India's dreams will reach new heights with time. They knew that the needs of Independent India and its citizens will change, challenges will change. That is why they did not leave our Constitution as just a mere book of laws. Rather, they made it a living, continuously flowing stream," Mr. Modi said.

The Prime Minister also cited a host of welfare measures undertaken by his government.

He noted that the original edition of the calli-

graphed Constitution carried pictures of Lord Ram, Sita, Guru Nanak, Buddha and Mahavir among others, and said the makers of the guiding document did it to remind citizens of human values.

Ending his address on a lighter note, Mr. Modi said he has tried to keep himself within the boundaries of the job assigned to him by the Constitution.

"I have not tried any encroachment. I have tried to put forward my views within the boundaries. Only a hint is enough here, there is no need to say much," he said in what appeared to be comments made in the context of his speech, which followed the addresses of several speakers including Mr. Sibal.

In his address, Mr Sibal had said constitutional courts play the role of reminding the government of the "centrality of the public in our republic" as they check disproportionate action and prevent government excesses, and both the bench and the bar play a very important part in the process.



Deep depression over Bay of Bengal likely to intensify into a cyclonic storm

The Hindu Bureau

CHENNAI

The Regional Meteorological Centre (RMC) here said on Tuesday that a deep depression over the southwest Bay of Bengal is likely to intensify into a cyclonic storm on Wednesday.

On 5.30 p.m. on Tuesday, the system, which had developed from a depression, moved north-northwestwards at a speed of 8 kmph and lay centred about 240 km southeast of Trincomalee, 520 km south-southeast of Nagapattinam, 640 km south-southeast of Puducherry and 720 km south-southeast of Chennai.

The storm is likely to continue to move north-northwestwards towards the Tamil Nadu coast skirting the Sri Lanka coast during the next two days.

S. Balachandran, Additional Director-General of Meteorology, RMC, said that a continuous watch was being kept on the movement and intensity of the system.



Heavy rain and gusty winds lashed Pamban in Ramanathapuram district on Tuesday as the region braced for a storm. L. BALACHANDAR

For Wednesday, the forecast is light to moderate rain at many places.

Alerts issued

Heavy to very heavy rain at a few places, with extremely heavy rain at one or two places, is likely to occur over Cuddalore and Mayiladuthurai districts and Karaikal area where a red alert has been issued.

The RMC has issued an orange alert for Chennai, Tiruvallur, Kancheepuram, Chengalpattu, Villupuram, Ariyalur, Thanjavur, Tiruvarur, Nagapattinam and Puduk-

kottai districts, and Puducherry where heavy to very heavy rain is likely to occur at isolated places on Wednesday.

Though the path of the system has been given for two days, the landfall point is not yet known. Senior meteorologist Y.E.A. Raj said the place of crossing is likely to be known by Wednesday evening.

“We are watching a few models but there is a lot of divergence in the forecasts given by them. One model even suggests that the system will split into two,” Mr. Raj explained.

SC asks Centre to file report on Pennaiyar water sharing

The Hindu Bureau
NEW DELHI

The Supreme Court on Tuesday asked the Union government to place on record the report prepared by a committee negotiating a dispute between Tamil Nadu and Karnataka over the sharing of the Pennaiyar river water.

The matter was before a Bench of Justices Hrishikesh Roy and S.V.N. Bhatti, which granted two weeks' time to the Centre (which facilitated the mediation) to produce the Negotiation

Committee's report.

The States had moved into the negotiation mode after Karnataka took the initiative, after the formation of the new government in the State in May 2023, to try and resolve the dispute through talks.

The court had in January directed the Union government to constitute a new negotiation committee under Section 4 of the Inter-State River Water Disputes Act of 1956 to make a serious endeavour for a resolution between the two States.



SC Bench has given two weeks to the Centre to produce the Negotiation Committee's report on Pennaiyar river water sharing.

In 2018, Tamil Nadu had moved the court against Karnataka's work on check dams and diversions'

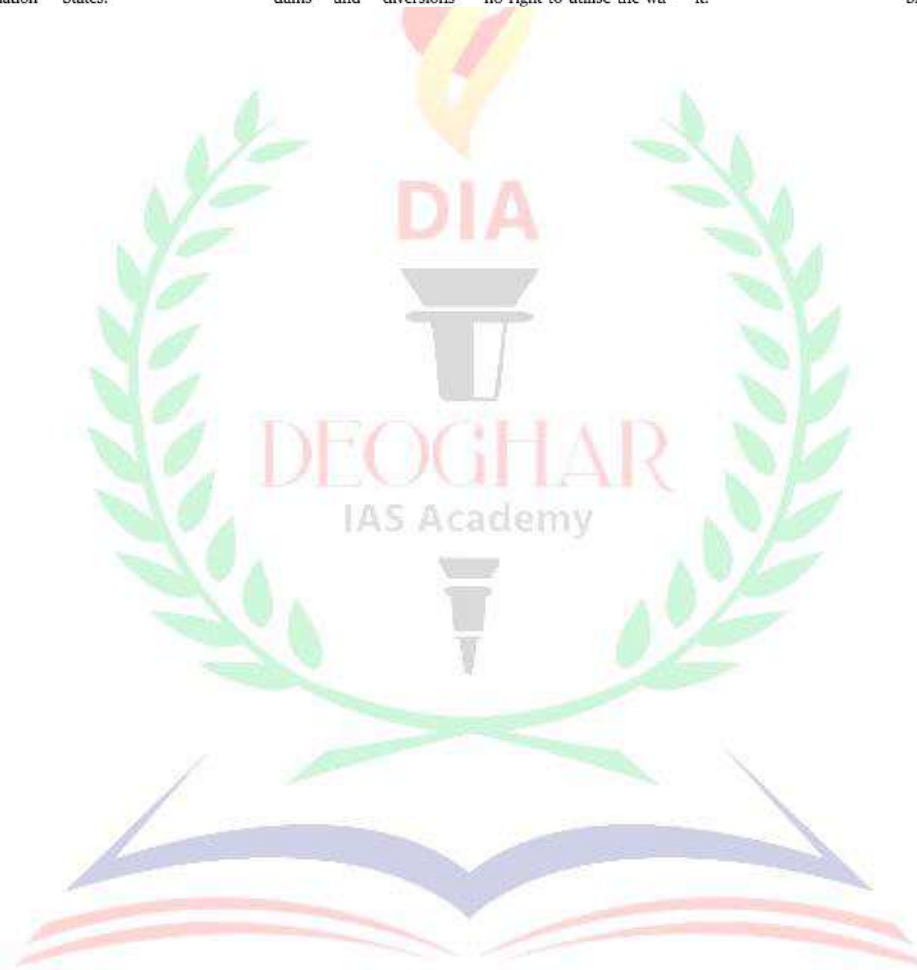
structures on the river. The State had told the Supreme Court that Karnataka had no right to utilise the wa-

ters of Pennaiyar river to the detriment of the people of Tamil Nadu. The flowing water of an inter-State river is a national asset and no single State can claim exclusive ownership of its water, Tamil Nadu had argued.

It had argued that an 1892 agreement over the river water was "valid and binding" on the party States. It had said a river even included the stream, tributaries and other streams contributing water directly or indirectly into it.

"Thus, the major tributary, Markandeyanadhi, which has its catchment area both in Karnataka and Tamil Nadu, cannot be considered to be out of the purview of the Agreement, and hence any new construction obstructing the flow of Markandeya river is governed and controlled by 1892 Agreement," Tamil Nadu had argued.

Karnataka's stand that it was free to construct any diversion structure or large dams across Markandeya river was wholly untenable, Tamil Nadu had said.



Unite to uphold spirit of Constitution: Murmu

At event marking 75 years of Constitution's adoption, President urges executive, legislature, and judiciary to work together for public welfare; Vice-President cautions against placing 'creed above country', implores institutions to stick to 'jurisdictional area'; Lok Sabha Speaker urges MPs to follow tradition of debates set by the Constituent Assembly

Sandeep Phukan
NEW DELHI

The Indian Constitution is a progressive document, and it is the responsibility of the executive, legislature and the judiciary to work together to better the lives of common people in accordance with the spirit of the Constitution, President Droupadi Murmu said on Tuesday at an event to commemorate 75 years of the adoption of the Constitution.

Speaking at the event held at the historic Central Hall of Samvidhan Sadan (old Parliament building), Vice-President Jagdeep Dhankhar made a veiled attack on the Opposition. Invoking Dr. B.R. Ambedkar, he said the country's "independence will be put in jeopardy a second time" if parties placed creed above country.

Stressing the separation of powers between the three organs of the state – executive, legislature and judiciary – Mr. Dhankhar said democracy functions

best when the Constitutional institutions work in tandem, adhering to their "jurisdictional area".

Lok Sabha Speaker Om Birla urged members to follow the tradition of constructive and dignified debates, set by the Constituent Assembly, in both Houses of Parliament.

Prime Minister Narendra Modi, Deputy Chairman of the Rajya Sabha Harivansh, Leader of the Opposition in the Rajya Sabha Mallikarjun Kharge, Leader of the Opposition in the Lok Sabha Rahul Gandhi, Leader of the Rajya Sabha J.P. Nadda and Parliamentary Affairs Minister Kiren Rijiju were seated on the dais.

Unity and integrity

During her speech, Ms. Murmu said that the fundamental duties of every citizen of the country had been clearly defined, laying stress on the nation's unity and integrity, promoting harmony in society, ensuring the dignity of women, protecting the environment, developing a



Joint efforts: President Droupadi Murmu unveils a commemorative coin on the occasion of Constitution Day on Tuesday. ANI

scientific temper and safeguarding public property among others.

The President also released a commemorative coin on the occasion and led the gathering in the reading of the Preamble to the Constitution.

Hailing the Constitution as a "living document", Ms. Murmu said framers of the Constitution were far-sighted to provide for a system that could adopt new ideas, reflecting the needs of changing times. "We have achieved many ambitious goals related to social

justice and inclusive development through the Constitution," she said, adding that the aspirations of the people found expression in the many legislation enacted by Parliament and, during the past few years, the government took many steps for the development of all sections of society, especially the weaker ones. "Such decisions have improved the lives of the people and are providing them new opportunities for development," she said.

The President said the Constitution was the outcome of nearly three years of deliberations by some of

the greatest minds but in the true sense, it was the outcome of the long freedom struggle.

Defining ideals
"The ideals of that incomparable national movement came to be enshrined in the Constitution. Those ideals have been captured succinctly in the Preamble to the Constitution. They are justice, liberty, equality and fraternity. These ideals have defined India since the ages," she noted.

Mr. Dhankhar gave a call to parliamentarians to res-

'Nation-first spirit' will keep alive the Constitution: PM

Sandeep Phukan
NEW DELHI

The spirit of "nation first" will keep alive the Constitution for centuries to come, Prime Minister Narendra Modi said. Addressing an event at

the Supreme Court, he described the Constitution as a "living stream" that has lived up to the needs and expectations of the country.

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to the "sanctity of our democratic temples through constructive dialogue, debate and meaningful discussion to serve our people effectively".

The Constitution's opening words – "We the People of India" – carry deep meaning, establishing citizens as the ultimate authority and Parliament serving as their voice, he said.

"We must always put our nation first. We need to be on guard as never before," Mr. Dhankhar said, adding that these commitments were crucial for

achieving the vision of *Viksit Bharat* by 2047.

Quoting Dr. Ambedkar's last address in the Constituent Assembly on November 25, 1949, the Vice-President said, "What perturbs me greatly is the fact that not only India has once before lost her independence but she lost it by the infidelity and treachery of some of her own people. Will history repeat itself?"

Mr. Birla said, "On this day, in this sacred chamber, our Constitution was adopted, a document that stands as a testament to the dedication, sacrifice, and vision of our forebears. Under the leadership of the President, millions of Indians today will recite the Preamble and pledge to uphold the ideals enshrined in our Constitution".

"Our Constitution has been a catalyst for social and economic change, bringing remarkable improvements to the lives of ordinary citizens and deepening their faith in democracy," he added.

