

DAILY CURRENT AFFAIRS (DCA)

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INDIA'S BIOECONOMY ROADMAP 2035

Context

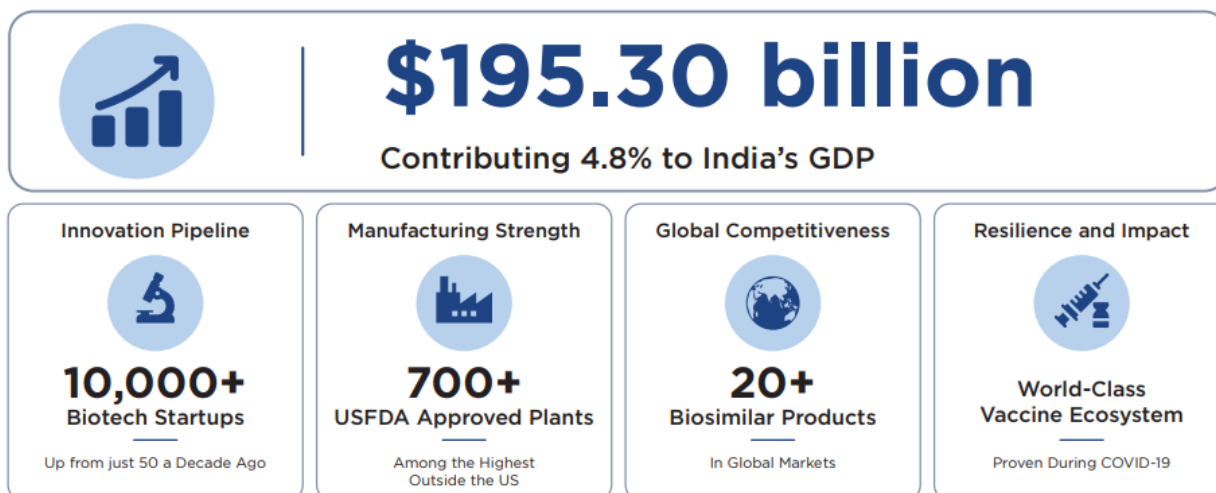
- NITI Aayog has recently announced the **Roadmap for Building India as a Leading BioEconomy Powerhouse by 2035**. The roadmap offers a detailed strategy to **make India one of the top three biotechnology powers** in the world by 2035.

Key Highlights of the Roadmap

- India's Ambitious Bioeconomy Targets:** Grow from \$10 billion in 2014 and **\$195.3 billion in 2025 (4.8% to national GDP)** to \$691 billion by 2035, and **\$2.6 trillion by 2047**.
 - Create more than 30 million high-value jobs in biotechnology, healthcare, agriculture, industrial biotechnology and the environment.
 - Transform India into a research led ecosystem and **global biotech innovation and manufacturing hub**.

2030	2035	2047
\$392 billion Contributing 4-4.5% to a projected \$8 trillion GDP	\$691 bn Contributing 5-6% to a projected \$11 trillion GDP. Generate over 30 million high-tech jobs. Establish 15 globally competitive biotech companies.	\$2.6 tn Contributing 8-10% of an envisaged \$30 trillion GDP

India BioEconomy 2025



- BioEconomy Growth Fund (2026-35) of ₹50,000 crore:** It will bridge the 'valley of death' in the biotechnology sector between lab research and commercial production.
 - The fund will support **Viability Gap Funding (VGF)**, shared biomanufacturing infrastructure and emerging sectors such as advanced therapeutics, synthetic biology, fermentation technologies, diagnostics and biomanufacturing, as well as investing in blended finance and equity-risk instruments.
 - Further, a **dedicated Production Linked Incentive (PLI) Scheme** has

been recommended to boost domestic biomanufacturing, reduce import dependence and enhance global competitiveness.

Six National BioMissions

- The roadmap recommends six mission-mode programmes to ensure focused implementation:
 - GeneIndia:** Affordable gene and cell therapies; precision medicine and genomic healthcare.
 - AgriBio 2.0:** Climate-resilient gene-edited crops; biofertilisers and biological crop protection.

- ♦ **BioX Foundry:** Commercialisation of synthetic biology innovations; and bio-based manufacturing platforms.
- ♦ **One Health Grid:** Integrated surveillance of infectious diseases; monitoring antimicrobial resistance (AMR); and human-animal-environment health integration.
- ♦ **Marine Biotechnology Mission:** Expansion of seaweed cultivation; and marine bio-products and blue bioeconomy.
- ♦ **BioPharmaNext:** Global hub for biologics and biosimilars; and AI-enabled drug discovery and vaccine innovation.

Institutional and Regulatory Reforms

- **Empowered Committee on National BioMissions** for inter-ministerial coordination.
- **National BioData Council** to govern biological and health data.
- **BioEconomy Investment and Policy Forum** to align public and private investments.
- **BioIP and Innovation Evaluation Agency** for biotechnology intellectual property valuation and commercialisation.
- It recommends:
 - ♦ Fast-track approval pathways for gene therapies, synthetic biology products, and AI-designed drugs.
 - ♦ Modernisation of the **Central Drugs Standard Control Organisation (CDSCO)**.
 - ♦ Development of **five integrated bio-innovation clusters** with shared manufacturing facilities and high-performance computing under the **National Supercomputing Mission**.

Significance

- The roadmap recognizes biotechnology as **strategic national infrastructure**, similar to digital public infrastructure and energy systems.
- It seeks to integrate Artificial Intelligence (AI), robotics, computational biology, and automated biofoundries.
- Such convergence may significantly shorten research timelines, improve manufacturing efficiency, strengthen healthcare resilience, facilitate sustainable agriculture and enhance India's competitiveness in the global bioeconomy.
- The proposals are in sync with national priorities under **BioE3 Policy, Atmanirbhar Bharat, Make in India, Startup India** and India's aspiration to be a global innovation hub.

Challenges

- Limited risk capital for biotech startups.
- Lack of synergy between academe and industry.
- Regulatory delays of new technologies.
- Insufficient biomanufacturing infrastructure.
- Fragmented governance of biological and health data.
- Shortage of highly skilled inter-disciplinary work force.
- The **Genome India Project** has produced rich genomic datasets, but better data-sharing mechanisms and interoperable digital health infrastructure are needed to convert such data to clinical research.

Way Forward

- The success of the roadmap will depend on execution in mission mode, coordinated governance and sustained public-private partnerships. The priority should be to:
 - ♦ Operationalising the BioEconomy Growth Fund.
 - ♦ Launching the six BioMissions with measurable outcomes.
 - ♦ Strengthening of biotechnology R&D and commercialisation.
 - ♦ Expand bio-innovation clusters and shared infrastructure.
 - ♦ Fostering responsible data governance and accelerating regulatory approval.
 - ♦ Developing a globally competitive biotechnology workforce.
- If implemented well, the roadmap can make biotechnology a major engine of India's economic growth, health security, food security, climate resilience and technology leadership, while fulfilling the **Viksit Bharat 2047** vision.

Source: TH

PANEL FLAGS AUTONOMY RISKS UNDER VBSA BILL

Context

- The joint parliamentary committee has noted that the **Viksit Bharat Shiksha Adhishthan Bill, 2025** will lead to the **concentration of extensive regulatory powers in a single central regulator**.

Key Features of the Bill

- **Regulatory Body:** The Bill establishes the Viksit Bharat Shiksha Adhishtan (the Commission) as an apex regulatory authority for higher education.
 - ♦ It replaces the University Grants Commission (UGC), **All India Council for Technical Education (AICTE), and National Council for Teacher Education (NCTE)**. The Commission will comprise the Regulatory, Accreditation, and Standards Councils.
 - ♦ It will regulate **technical education, teacher-training, and architecture education**. Other professional courses, such as medicine and law have been excluded from its purview.
- **Composition of the Commission:** The Commission will consist of a Chairperson and up to **12 members**. Members include:
 - ♦ The Presidents of the three Councils,
 - ♦ The higher education secretary of the central government,
 - ♦ The five eminent experts, and
 - ♦ Two eminent academicians from state HEIs. The Chairperson will be selected by the central government.
- **Composition of the Councils:** Each Council will consist of **14 members** headed by a President. Members will include eminent experts, one nominee of the Union Department of Higher Education, and nominees of the other two Councils.
- **Functions of the Councils: The Regulatory Council** will be responsible for establishing and ensuring compliance with minimum standards for setting up an HEI, facilitating the autonomy of HEIs in a timely manner, and addressing grievances received from stakeholders against HEIs.
 - ♦ **The Standards Council** will be responsible for framing learning outcomes for higher education programmes, and minimum academic standards for HEIs.
 - ♦ **The Accreditation Council** will be responsible for developing an accreditation framework and system for HEIs.
- **Removal of members:** The Chairperson, Presidents, or any full-time members of the Commission or the Councils may be removed on grounds of; insolvency, conviction of offence involving moral turpitude, physical or mental incapacity, or abuse of powers.

- **Right to confer degrees:** Degrees may be granted only by:
 - ♦ A university (established by a central or state Act or deemed under the **UGC Act, 1956**), or
 - ♦ An institution specially empowered by a central Act, or
 - ♦ Other HEIs authorised by the Regulatory Council with the prior approval of the central government.

Key Issue of the Bill

- **Autonomy of HEIs:** The Bill's provisions may not significantly improve the autonomy of higher education institutions (HEIs). In some cases, autonomy already granted to HEIs may be rolled back.
 - ♦ Currently, **institutes of national importance** are governed under their specific laws, with academic and research autonomy. The Bill brings such institutes under the purview of the Commission and its Councils.
 - ♦ The Committee expressed apprehension that concentration of extensive regulatory powers in a single central regulator could lead to bureaucratic or ideological overreach, thereby affecting institutional autonomy.
- **Funding:** Allocating and granting funds is a key function of the UGC.
 - ♦ The Bill does not include this as a function of the Commission or its Councils.
 - ♦ **The National Education Policy (NEP), 2020** had recommended setting up a single regulator with four verticals for regulation, accreditation, funding, and standard setting. **The Bill sets up three of these, excluding funding.**
- **The Bill treats professional courses inconsistently.**
 - ♦ **Technical, management, and teacher education** will come under the VBSA Commission.
 - ♦ **Architecture education** will be regulated by the Commission, while the Council of Architecture will continue as a professional body.
 - ♦ **Medical, legal,** and certain other professional courses remain outside its ambit.
- **Penalty:** The committee noted that the bill has proposed a graded penalty architecture but flagged that penalties cannot be imposed arbitrarily by the Regulatory Council.

- **Appeals against decisions of the Councils** will be made to the central government. This is unlike the procedure for other regulators, such as SEBI and TRAI.
- Grounds for **removal of part-time members** not provided.

Recommendations by the Committee

- **Filling Vacancies:** The ministry shall frame appropriate rules to ensure that the process for filling predictable vacancies, such as those arising from retirement or superannuation, is initiated at least **six months in advance** and completed within **90 days of the occurrence of the vacancy**.
- The committee accepted that the presidents and full-time members of the council be appointed by the **President of India on the recommendation of the search-cum-selection committee**.
 - ♦ **Other Members of the Commission and the Councils** may be appointed by the **Central Government rather than by the President of India**.
 - ♦ Presently many central institutions are suffering because of delay in appointment of the Members and the involvement of a long gestation of time period.

Source: TH

CAG AUDIT FLAGS DIVERSION OF DMFT FUNDS IN CHHATTISGARH

Context

- The Comptroller and Auditor General (CAG) has highlighted serious irregularities in the implementation of the **Pradhan Mantri Khanij Kshetra Kalyan Yojana (PMKKKY)** and utilisation of **District Mineral Foundation Trust (DMFT) funds** in Chhattisgarh.

Pradhan Mantri Khanij Kshetra Kalyan Yojana (PMKKKY)

- **Launched:** In 2015 by the Ministry of Mines.
- **Objective:** To ensure that mining-related revenues are utilised for the **socio-economic development** and welfare of mining-affected people and areas.
- **Funding Mechanism:** Implemented through **District Mineral Foundation Trusts (DMFTs)**, which receive mandatory contributions from mining leaseholders under the **Mines and Minerals (Development and Regulation) Act, 1957 (MMDR Act)**.

- **Focus Areas:** Drinking water supply, healthcare, education, skill development, women and child welfare, environmental restoration, sustainable livelihood generation, infrastructure in mining-affected regions.

Major Findings of the CAG Audit

- **Dilution of PMKKKY's Core Objective:** Under PMKKKY, DMFT funds are meant only for people and villages directly or indirectly affected by mining activities.
 - ♦ **Chhattisgarh DMFT Rules, 2015** expanded the definition of "affected people" beyond the intended mining-affected population.
 - ♦ Benefits were extended to all residents of mining districts without clear eligibility criteria.
- **Large Number of Mining-Affected Villages Left Uncovered:** nearly **44%** (754 out of 1,734) directly affected villages remained uncovered.
- **Expenditure on Non-Priority Works:** DMFT funds were diverted towards activities outside PMKKKY priorities, including beautification projects, renovation of government offices etc.
- **Absence of Scientific Planning:** The audit found that no Master Plans, no Vision Documents, and no Annual Development Plans were prepared before spending large amounts of DMFT funds.
- **Delay in Identification of Mining-Affected Areas:** Identification of affected villages was delayed by 5 months to 5 years.

Comptroller and Auditor General of India (CAG)

- The CAG is the **supreme audit authority of India**, responsible for auditing government accounts and ensuring accountability in public finance management.
- **Articles 148 to 151** of the Indian Constitution provide the framework for the appointment, duties, and reporting structure of the CAG.
- **The Comptroller and Auditor General's (Duties, Powers and Conditions of Service) Act, 1971**, determines the CAG's service conditions and prescribes the duties and powers of their office.

Duties and responsibilities of CAG

- Audits expenditure from the **Consolidated Fund of India**, states, and union territories with Legislative Assemblies.
- Audits expenditure from the **Contingency Fund and Public Account of India** and those of the states.

- Audits transactions related to **debt, sinking funds, deposits, advances, suspense accounts, and remittance business** with Presidential approval.
- Audits accounts of any authority if **requested by the President or Governor** (e.g., local bodies).

Audits Reports Submitted by CAG to the President of India

- Comptroller and Auditor General (CAG) of India submits **three audit reports** to the President of India (Article 151).
 - ♦ **Audit report on appropriation accounts:** This report shows how the legislature-granted money was allocated to different heads of expenditure and grants. It also verifies if the money was spent for the intended purpose.
 - ♦ **Audit report on finance accounts:** This report shows the annual receipts and expenditures of the country.
 - ♦ **Audit report on public undertakings:** This report covers the finances and expenditures of various Public Sector Undertakings (PSUs).
- After receiving the reports, the President lays them before both houses of Parliament. **The Public Accounts Committee (PAC)** then examines the reports and submits its findings to Parliament.

Source: [IE](#)

SC'S PROPOSED REGULATIONS FOR AI USE IN COURTS

Context

- The Supreme Court (SC) recently released the **draft of Regulations for Use of Artificial Intelligence (AI) in Courts, 2026**, aimed at developing a **governance framework for use of AI in the judiciary**.

About

- The Draft Regulations will come into force for the SC on **any date notified by the Chief Justice of India**.
- **For High Courts** and courts and tribunals under their jurisdiction, they will come into force separately on the dates notified by that **High Court's Chief Justice**.

- Different provisions can be brought into force on different dates, meaning that **AI adoption can be further phased to suit the courts' requirements and circumstances**.

Major Highlights of the Regulations

- **It permits the use of AI for administrative functions** such as case management, preparation of cause lists, scheduling of hearings, transcription of court proceedings and translation of judgments.
- **AI systems cannot be used for "risk scoring"** in court processes, this includes assessing flight risk, predicting recidivism, evaluating bail eligibility, or determining the credibility of parties or witnesses.
- The processing of personal data through AI systems **shall be governed by the provisions of the Digital Personal Data Protection Act, 2023**.
- To supervise the adoption of AI in the judiciary, it proposes the **creation of a full-time "apex body" at the Supreme Court**.
 - ♦ **The Centre of Research and Excellence on Artificial Intelligence (CoRE-AI)**, will evaluate tools and track developments to support the Apex Body.
- **Inform Parties Involved:** If a court uses an AI tool to "materially assist" it in any aspect of case management, document analysis, or judicial administration, it will be required to inform the parties in a timely and accessible manner.
- **Cybersecurity Audits:** Upon deployment, systems will face technical, legal, and ethical audits, as well as separate cybersecurity audits on the same cycle.
 - ♦ These are to be conducted in-house, since source code and training data can never be shared with a third-party for audit purposes.
 - ♦ Each Court will also be required to maintain an AI Register documenting approved systems and audit outcomes.
 - ♦ Each high court will also be required to maintain an **emergency fall-back protocol** to keep court processes running manually if a system goes down.
- **Grievances:** The grievance route will apply specifically where harm results from a prohibited use of AI. An affected party can file an application at the earliest opportunity with the court where the relevant AI system was or is being used.

- ♦ That court must give the affected party a hearing and pass “appropriate orders as it may deem fit”.

Use of AI in India's Justice System

- In the Supreme Court, High Courts, National Informatics Centre (NIC) **AI tools are now assisting various functions such as:**
 - ♦ Transcription of oral arguments,
 - ♦ Translation of judgments,
 - ♦ Identification of defects in e-filing,
 - ♦ Legal research, and
 - ♦ Metadata extraction.



- Over the past decade, **courts have moved from basic computerisation to nationwide digital platforms**, real-time data systems, virtual courts and multilingual judgment access.
- **Latest technologies** like AI and its subsets Machine Learning (ML), Optical Character Recognition (OCR), Natural Language Processing (NLP) are being used in the e-Courts software applications developed under the eCourts Project.

Significance of Use of AI in Judiciary in India

- **Backlog of Cases:** India's judicial system faces a backlog of cases, undermining public trust in timely justice. AI can streamline case management, reduce backlog, and speed up judicial processes.
- **Overcrowding in Prisons:** Indian prisons have been **housing more inmates than their capacity** for decades now, AI can streamline the complaint registration process, track investigations, flag necessary actions, and assess investigation quality.

- **Translation and Accessibility:** India has **22 scheduled languages** and hundreds of dialects. AI-powered translation can make judicial documents and judgments accessible across linguistic barriers.
 - ♦ **The SUVAAS (Supreme Court Vidhik Anuvaad Software) project** has translated thousands of judgments into regional languages.
- **Enhanced Accuracy:** AI can prevent neglect of crucial evidence and ensure a more meticulous and reliable criminal justice process.
- **Improving Access to Justice:** AI chatbots and virtual assistants can help litigants, especially those without legal representation, navigate procedures, track case status, and file petitions.

Concerns/Challenges

- **Bias and Dependence:** AI-enabled legal research may show search bias, excluding relevant precedents. Over-reliance risks reducing adjudication to rule-based outputs, sidelining nuanced human judgment.
- **Data Protection and Privacy:** Absence of clear frameworks on storage and use of judicial data raises concerns.
- **Infrastructure Gaps:** Courts face uneven Internet connectivity, outdated hardware, and limited technical expertise.

WAY AHEAD

- A balanced approach must be taken to ensure AI tools respect privacy, civil liberties, and ethical standards, while preventing misuse.
- By leveraging AI, India's criminal justice system can become more efficient, accessible, and just, while ensuring safeguards are in place to address any challenges.

Source: IE

INDIA'S FIRST HYDROGEN-POWERED TRAIN

Context

- PM Modi flagged off India's first Hydrogen powered train running between an 89-km stretch of Jind and Sonipat in Haryana, under the jurisdiction of Northern Railway's Delhi Division.

India's First Hydrogen-Powered Train

- **Key Features of the train:**
 - ♦ The train was developed by **Chennai-based Integral Coach Factory (ICF)**.
 - ♦ It is a **10-car hydrogen** fuel cell-based train set, powered by a **1200 kW hydrogen fuel cell propulsion system**.
 - ♦ The train consists of **two Hydrogen Driving Power Cars (DPCs)** and **eight Trailer Coaches (TCs)**.
 - ♦ Approved to operate at a maximum speed of **75 kmph** with a **design speed of 110 kmph**.

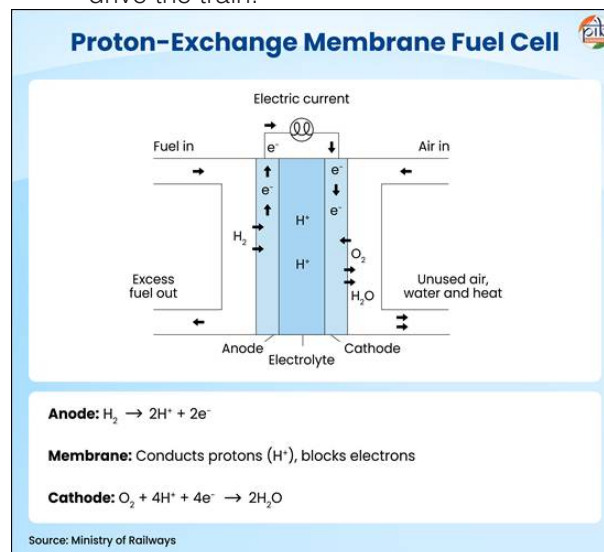
Major Components of the Train

- **Proton Exchange Membrane (PEM) Fuel Cells** that generate electricity.
- **Lithium Iron Phosphate (LFP) batteries** that store surplus electricity and provide additional power during acceleration.
- **High-pressure hydrogen storage cylinders** for storing compressed hydrogen gas.
- **Electric traction motors** that convert electrical energy into mechanical motion.
- **Safety Measures:**
 - ♦ **Hydrogen leak detectors** have been installed at the production, storage and dispensing facilities.
 - ♦ **Flame detectors** have also been installed for continuous monitoring.

How Does the Hydrogen Train Work?

- A hydrogen-powered train is a **fuel-cell electric train** that generates electricity onboard using **hydrogen gas instead of diesel fuel or electricity** supplied through overhead transmission lines.
- **Hydrogen fuel cell technology** produces electricity through a chemical reaction using hydrogen.
 - ♦ The primary energy source is a **Proton Exchange Membrane Fuel Cell (PEMFC)**.
 - ♦ The fuel cell generates electricity by **reacting hydrogen and oxygen across a proton-conducting Perfluorosulfonic Acid (PFSA) polymer membrane**.
 - ♦ The process produces only **water vapour and heat** as byproducts.

- ♦ Electricity powers the traction motors that drive the train.



Significance

- **Sustainable mobility:** The project is a **big step towards decarbonising** the transport sector of India through the replacement of diesel traction with a technology with zero tailpipe emission.
 - ♦ It provides a **clean alternative** for non-electrified routes.
- **India's climate commitments:** It contributes to India's promise of reaching Net Zero emissions by 2070.
- **India's technological leadership:** India is now among the front-runners in the development of hydrogen-based railway transportation with the successful commissioning of one of the world's most powerful hydrogen trainsets.

What are the Challenges?

- **Hydrogen infrastructure:** India has insufficient facilities for hydrogen generation, storage, transportation and refuelling, which restricts large scale adoption.
- **High capital investment:** Large capital outlay is required to set up hydrogen production plants, refuelling stations, fuel-cell systems and unique rolling stock.
- **Safety concerns:** Hydrogen is very flammable, requiring special storage facilities and strict operational safety procedures.

What is hydrogen?

- **Hydrogen is a** chemical element with **chemical symbol H and atomic number 1**.
- Hydrogen is the lightest of all elements and the most common chemical material in the universe, accounting for around **75%** of all normal matter.
- It is a **non-toxic, colourless, odourless, tasteless** and extremely inflammable gas.

Hydrogen Colour	Mode of Production	Fuel	Carbon Intensity
Green Hydrogen	Electrolysis	Electricity from Wind, Solar, Geothermal, Tidal, Hydro	Near zero
Purple/Pink Hydrogen		Nuclear heat and electricity/Nuclear electricity in electrolysis	
Yellow Hydrogen		Solar electricity	
Blue Hydrogen	Steam Methane Reforming, Gasification + CCS	Natural gas and coal	Low
Turquoise Hydrogen	Pyrolysis	Natural gas	Medium/low – solid carbon by-product
Grey Hydrogen	Steam methane reforming (SMR)		Medium
Brown Hydrogen	Gasification	Coal – Brown: Lignite, Black: Black coal	Highest
Black Hydrogen			

Source: [TH](#), [PIB](#)

- **Traditional dances and festivals** are closely linked to **agriculture and forests**.

Source: [DTE](#)**NEWS IN SHORT****KORKU COMMUNITY****Context**

- The **indigenous Korku community of Madhya Pradesh** have demanded the forest department and district administration to remove encroachments from forest lands.

About

- Korkus is a **Munda ethnic group** concentrated chiefly in **Madhya Pradesh and parts of Maharashtra**.
- Based on the 1991 census, the total population of Korku was 4,52,149.
- The literal meaning of Korku is - **human group**.
- They belong to the **Munda linguistic group**, speaking the **Korku language** (Mon–Khmer family).
- **Ancestor worship** is an important feature; **memorial pillars called Munda** are erected in memory of the deceased.

PREVENTION OF INSULTS TO NATIONAL HONOUR (AMENDMENT) BILL, 2026**In News**

- The government is expected to introduce the **Prevention of Insults to National Honour (Amendment) Bill** during the Monsoon Session of Parliament.

About

- **Prevention of Insults to National Honour Act, 1971** currently provides legal protection to the national flag, the Constitution of India, and the national anthem, Jana Gana Mana.
- The Union Cabinet has approved a proposal to **amend the Prevention of Insults to National Honour Act, 1971**, making the deliberate insult of or obstruction to the singing of Vande Mataram a punishable offence.

- Under the amendment, whoever intentionally insults, prevents or disrupts the singing of Vande Mataram shall be punished with imprisonment for a term up to three years or with a fine or with both, which is equal to the punishment for similar offences involving the national anthem.

Vande Mataram

- Vande Mataram meaning “Mother, I Bow to Thee” was written by **Bankim Chandra Chatterjee** and was first published in **Bangadarshan** on 7 November 1875.
 - It was later incorporated into his novel **Anandamath (1882)**, and set to music by **Rabindranath Tagore**.
- The song became a unifying symbol of Indian nationalism and freedom struggle, inspiring movements such as the **Swadeshi Movement (1905)** and serving as a rallying cry against British rule.
- The words ‘**Vande Mataram**’ were displayed by **Madam Bhikaji Cama** on the first Indian tricolour unfurled abroad (1907) and invoked by many revolutionaries including Madan Lal Dhingra as a patriotic slogan.
- On 24 January 1950, Dr. Rajendra Prasad announced in the Constituent Assembly that Jana Gana Mana would be the National Anthem and Vande Mataram would be the National Song to be honoured equally for its historic role in India’s freedom movement.
 - On 7th November 2025, Vande Mataram completes 150 years of existence, a timeless symbol of unity, patriotism, sacrifice and national identity

Source: [TH](#)

KUDANKULAM NUCLEAR POWER PLANT

Context

- A ransomware group has posted files linked to the **Kudankulam Nuclear Power Plant** on the dark web.

About

- Kudankulam Nuclear Power Plant is located in **Tirunelveli district of Tamil Nadu**. It is **India’s largest nuclear power station**.
- It consists of **six units of Pressurised Water Reactors** of VVER design, which were established in **technical collaboration with Russia**.

- The first two units (KKNPP Units-1 & 2)** are already in operation, while **Units 3 and 4 are still under construction** and are due to be operational by **2027**.
- The **remaining two units are at different stages of progress**.

Nuclear Power in India

- India is currently **operating 24 nuclear power reactors** across **seven sites** with a **total installed capacity of 8.78 Gigawatt**.
- Other six:** Tarapur Atomic Power Station (TAPS) Maharashtra, Rajasthan Atomic Power Station (RAPS), Kaiga Generating Station (KGS) Karnataka, Madras Atomic Power Station (MAPS) Tamil Nadu, Narora Atomic Power Station (NAPS) Uttar Pradesh, and Kakrapar Atomic Power Station (KAPS) Gujarat.
- Ten more reactor units** with a combined capacity of eight thousand Megawatt are **under construction**.
 - These reactors are **Pressurised Heavy Water Reactors, Boiling Water Reactors and Light Water Reactors**.
- The country is mainly **using natural uranium fuel to run the Pressurised Heavy Water Reactors** to produce nuclear energy.

Source: [TH](#)

CYCLOSPORIASIS OUTBREAK

Context

- A growing outbreak of **Cyclosporiasis** in the United States has prompted public health concerns.

About

- Cyclosporiasis is a type of food poisoning, caused by the **microscopic parasite, Cyclospora cayetanensis**.
- It is commonly linked to the consumption of **contaminated fresh produce**, including **leafy greens, lettuce**, spinach, basil, cilantro, parsley, raspberries, and snow peas.
- It spreads through the **faeco-oral route**, which means that food or water contaminated by faeces containing the parasite, cause the illness. It **does not spread from person to person**.

- Although the **first published human case** was reported in **1979** in **Papua New Guinea**, Cyclospora was not widely recognised as a significant human pathogen until the **1990s**, when several foodborne outbreaks were reported.
- **Symptoms** usually appear about one week after infection and include watery diarrhoea, abdominal cramps, bloating, loss of appetite, fatigue, nausea, weight loss, and occasionally vomiting and low-grade fever.
- While the disease is generally **not life-threatening**, it can be more severe in children, older adults, and people with weakened immune systems.
- The recommended **treatment** is the antibiotic **trimethoprim-sulfamethoxazole (TMP-SMX)**, along with **adequate fluid intake** to prevent dehydration.

Source: [TH](#)

REVISED CAFE III NORMS

In News

- Recently, Union Government has released the **draft Corporate Average Fuel Efficiency (CAFE)-III norms** for public consultation, which set tougher standards for fuel efficiency and CO emissions of passenger vehicles starting from 1 April 2027.

Background

- The **Bureau of Energy Efficiency** introduced the **CAFE norms in 2017** to regulate fuel consumption and carbon emissions from passenger vehicles.
- These norms apply to vehicles running on petrol, diesel, liquefied petroleum gas (LPG), compressed natural gas (CNG), hybrids, and electric vehicles (EVs) weighing less than 3,500 kg.
 - ♦ The norms were tightened in the beginning of financial year 2022-23, with increased penalties for non-compliance.

- The CAFE norms push automakers to lower carbon dioxide emissions while incentivising the production of EVs, hybrids, and CNG vehicles, which are less carbon-intensive than cars that run on fossil fuels.

Key Highlights of Revised CAFE III

- **More ambitious fuel efficiency targets:** Under the proposed norms, manufacturers will be required to progressively improve the fuel efficiency of their fleets.
 - ♦ The target fuel consumption is proposed to be tightened from 3.996 litres per 100 km (94.76 gCO/km) in 2027-28 to 3.327 litres per 100 km (78.90 gCO/km) by 2031-32.
- **Biofuel Recognition:** For the first time, Carbon Neutrality Factors (CNFs) are proposed, allowing manufacturers to claim lower-than-actual tailpipe emissions for vehicles using ethanol, compressed biogas (CBG) and other biofuels, acknowledging their lower lifecycle emissions.
- **Compliance in blocks:** Instead of annual compliance, manufacturers will be assessed over two blocks of compliance, a first 3-year period and a 2-year period.
- **Technology Incentives:** It proposes additional incentives for manufacturers adopting fuel-saving technologies.
 - ♦ They can claim compliance benefits of up to 9 gCO/km, subject to a maximum benefit of 1 gCO/km for each approved technology.
- **Super Credits for Cleaner Vehicles:** It also recommends super credits for Battery Electric Vehicles (BEVs), Range-Extended Electric Vehicles (REEVs), Plug-in Hybrid Electric Vehicles (PHEVs), Strong Hybrid Electric Vehicles (SHEVs), and Flex-Fuel Vehicles (FFVs) while calculating fleet average fuel consumption, thereby encouraging the adoption of cleaner vehicle technologies.

Source : PIB