

12/05/2026 Daily Current News

1. *Carbon Capture, Utilisation and Storage (CCUS):*

Context: Union Minister for Education, Shri Dharmendra Pradhan, today inaugurated India's first Integrated CCUS Field Laboratory Facility under Bharat Innovates 2026 at IIT Bombay.

About Carbon Capture, Utilisation and Storage (CCUS):

- ❖ Carbon Capture, Usage and Storage (CCUS) is a group of technologies used to capture carbon dioxide (CO₂) emissions from industries and power plants or directly remove CO₂ from the atmosphere.
- ❖ CCUS aims to reduce greenhouse gas emissions and mitigate climate change.
- ❖ The process involves three stages: capture, transport, and storage/use of CO₂.
- ❖ In post-combustion capture, CO₂ is separated from flue gases after fuel burning using solvents.
- ❖ In pre-combustion capture, fuel is converted into a hydrogen-CO₂ mixture before combustion, and CO₂ is separated.
- ❖ In oxy-fuel combustion, fuel is burned in pure oxygen, producing mainly CO₂ and steam for easier capture.
- ❖ Captured CO₂ is compressed and transported through pipelines, ships, rail, or road networks.
- ❖ CO₂ is stored in deep geological formations such as depleted oil and gas fields or saline aquifers for long-term sequestration.
- ❖ Captured CO₂ can also be utilized in commercial and industrial applications.

About India's First Integrated CCUS Field Laboratory Facility:

- ❖ India's first Integrated Carbon Capture, Utilisation and Storage Field Laboratory Facility was conceptualized and developed under the leadership of Vikram Vishal.
- ❖ The facility is housed at Indian Institute of Technology Bombay.
- ❖ It is India's first end-to-end pilot-scale platform integrating Carbon Capture and Utilisation (CCU) with Geological CO₂ Sequestration (GCS) in basalt formations.
- ❖ The project was developed with support from the Government of India, industry partners, and IIT Bombay.
- ❖ The facility supports the vision of Atmanirbhar Bharat and India's Net-Zero commitments.
- ❖ It uses an advanced aqueous-based CO₂ capture technology developed at IIT Bombay.
- ❖ The technology can capture CO₂ from ambient air and industrial emissions using non-potable water.
- ❖ Captured CO₂ can be converted into high-purity carbonate and bicarbonate salts for industrial use.
- ❖ The facility promotes a sustainable waste-to-wealth approach through carbon utilization.
- ❖ Its Geological CO₂ Sequestration component is India's first pilot-scale scientific drilling initiative to study the storage potential of the Deccan Traps.
- ❖ The facility acts as a national testbed for scalable carbon management technologies.
- ❖ It aims to facilitate the transition of climate-related innovations from research to industrial deployment.

2. *'SEHAT Mission':*

Context: Union Ministers Shri JP Nadda and Shri Shivraj Singh Chouhan launch 'SEHAT Mission', a major new initiative linking agriculture and health.

About Science Excellence for Health through Agricultural Transformation ('SEHAT Mission'):

- ❖ It seeks to connect agriculture, nutrition and public health through scientific collaboration.
- ❖ The mission has been jointly launched by the Indian Council of Agricultural Research (ICAR) and the Indian Council of Medical Research (ICMR) with the objective of building a framework for 'Healthy Food, Healthy Farms and a Healthy India'.
- ❖ The initiative aims to build a farm-to-plate scientific chain linking agriculture with disease prevention and nutritional security.
- ❖ It promotes bio-fortification of crops with essential micronutrients such as zinc and iron.
- ❖ The programme encourages cultivation and consumption of nutrient-rich traditional millets like Ragi, Jowar, and Bajra.
- ❖ It supports integrated farming systems combining crops, animal husbandry, fisheries, and beekeeping for balanced family nutrition.
- ❖ The initiative focuses on farmer health and safety through awareness and scientific measures against pesticide and chemical exposure.
- ❖ It promotes dietary solutions for prevention and management of non-communicable diseases such as Diabetes, hypertension, and cancer.
- ❖ The programme follows the One Health approach linking human, animal, and environmental health.
- ❖ It encourages collaboration between agricultural and medical scientists for integrated health planning.
- ❖ The initiative supports science-based policymaking through real-time dashboards and nutrition-oriented research databases.

3. *Multi-Lane Free Flow (MLFF) tolling system:*

Context: Shri Nitin Gadkari rolls out the first-of-its-kind barrier-less toll plaza at Mundka – Bakkarwala , UER-II (Urban Extension Road) in the National Capital Region (NCR).

About Multi-Lane Free Flow (MLFF) tolling system:

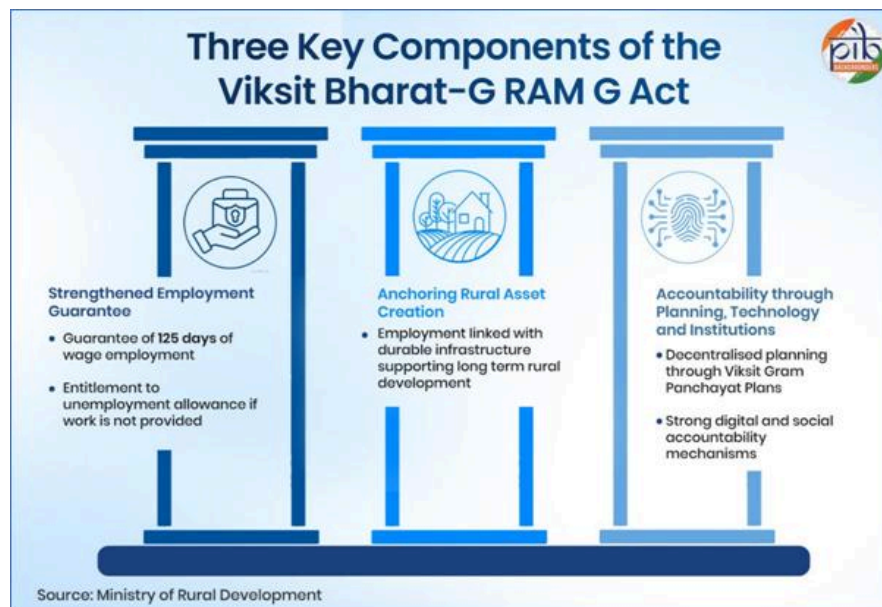
- ❖ The system integrates Automatic Number Plate Recognition (ANPR) technology with FASTag-based Electronic Toll Collection to facilitate automated user fee collection with minimal human intervention.
- ❖ The Multi-Lane Free Flow Tolling System is a barrier-less toll collection system using FASTag and Vehicle Registration Number (VRN) recognition.
- ❖ It operates through high-performance RFID readers and Automatic Number Plate Recognition (ANPR) cameras.
- ❖ MLFF enables toll collection without requiring vehicles to stop at toll plazas.
- ❖ The system reduces traffic congestion and travel time on highways.
- ❖ It improves fuel efficiency by minimizing vehicle idling and stoppage.
- ❖ MLFF helps reduce vehicular emissions and supports cleaner transportation.

4. *Viksit Bharat – Guarantee for Rozgar and Aajeevika Mission (Gramin) [VB–G RAM G] Act, 2025:*

Context: Marking a major milestone in India’s rural development journey, the Government of India on 11 May 2026 notified the implementation of the Viksit Bharat – Guarantee for Rozgar and Aajeevika Mission (Gramin) [VB–G RAM G] Act, 2025, to be rolled out nationwide from 1 July 2026.

About VB–G RAM G Act, 2025:

- ❖ The Viksit Bharat-Guarantee for Rozgar and Aajeevika Mission (Gramin) Act, 2025 replaces and comprehensively reforms MGNREGA, marking a major shift in rural employment policy.
- ❖ The Act aligns rural employment with the Viksit Bharat 2047 vision by improving accountability, strengthening infrastructure creation, and enhancing income security in rural areas.



- ❖ Viksit Bharat Guarantee for Rozgar and Aajeevika Mission Gramin Act guarantees 125 days of wage employment per rural household annually (increased from 100 days).
- ❖ Employment is provided to adult members willing to undertake unskilled manual work, strengthening rural income security.
- ❖ A 60-day no-work period is built in to ensure availability of agricultural labour during peak sowing and harvesting seasons.
- ❖ Workers can still complete 125 days of employment within the remaining 305 days of the year.
- ❖ The design aims to balance the needs of farmers and rural labourers.
- ❖ Wages are to be paid weekly, and in any case within a fortnight of work completion.

What makes Viksit Bharat-G RAM G better than MGNREGA?	
MGNREGA	Viksit Bharat-G RAM G
100 days of wage employment per rural household	125 days of wage employment per rural household
Multiple and scattered categories of works with limited strategic focus	4 clearly defined priority areas focusing on water security, rural infrastructure, livelihoods and climate resilience
Center bears unskilled wage costs, states bear unemployment allowance	State cost-sharing for wages, 60:40 for most states, 90:10 for certain special-category regions
No explicit statutory "pause window"	States can notify up to 60 days in a FY when work will not be executed
Demand based funding with unpredictable allocations	Normative funding ensuring predictable budgeting while protecting the employment guarantee
Gram Panchayat planning is central	Integrates institutionalised convergence and infrastructure planning

Source: Ministry of Rural Development

5. 'Divyastra' Missile:

Context: India conducted the 2nd successful flight-trial of 'Divyastra' Missile from Dr. APJ Abdul Kalam Island, Odisha.

About 'Divyastra' Missile:

- ❖ Agni Missile is an advanced missile equipped with Multiple Independently Targeted Re-Entry Vehicle (MIRV) technology.
- ❖ Multiple Independently Targeted Re-Entry Vehicle allows a single missile to carry multiple nuclear warheads.
- ❖ Each warhead in a MIRV-equipped missile can independently strike different targets.
- ❖ MIRV technology was originally developed in the early 1960s.
- ❖ The United States was the first country to develop MIRV technology.
- ❖ Other countries possessing MIRV capability include Russia, United Kingdom, France, and China.

6. National Technology day:

Context: National Technology Day is observed in India on 11 May every year.

About National Technology day:

- ❖ The celebration of this day was started in 1999 to honour Indian scientists, engineers and technologists, who ensured the successful conduct of Pokhran tests in May 1998.
- ❖ On May 11, 1998, India successfully conducted its first nuclear tests under Pokhran-II, codenamed Operation Shakti.
- ❖ The primary objective of National Technology Day is to promote scientific temper and inspire the younger generation to pursue careers in STEM fields.
- ❖ It serves as an occasion to raise awareness about the importance of technology in addressing societal challenges and fostering economic growth.
- ❖ The theme for National Technology Day 2026 is "Responsible Innovation for Inclusive Growth".

Quick Bites:

- ☐ The Nigerian military and the “bandit” gangs it is fighting killed around 100 civilians on Sunday, sources said. The Nigerian military killed at least 72 people, many of them civilians, in an airstrike in **Zamfara**. Another air strike killed 13 civilians in Niger. Armed gangs also killed 30 people in a separate attack in Zamfara.
- ☐ Chief Justice of India Surya Kant on Monday announced in open court the launch of a major digital initiative — “One Case One Data” — to integrate the judicial administration at every level, from the taluk court to the top court, into a unified system. The CJI said the mechanism is aimed at creating a more comprehensive and interconnected digital database across courts. The CJI also announced the launch of ‘Su Sahay’, an artificial intelligence (AI)-powered assistance chatbot integrated with the Supreme Court website to facilitate easier access to justice and court-related services for litigants.
- ☐ Gharial was recently spotted in Assam's Kaziranga National Park after a long time and a recent survey recorded 143 Odonata species across Western Ghats, highlighting 35% shortfall in known diversity.
- ☐ India added 44 GW of solar capacity in 2025, taking the total installed solar capacity to 150 GW. By March 2026, India’s installed solar power capacity had reached 150.2 GW AC, and the country ranked as the world’s third-largest producer of solar power.
- ☐ Pune is set to establish India’s first Low Emission Zone (LEZ) in Shivajinagar, a densely polluted area in the central business district. The initiative is being developed by the Pune Municipal Corporation with support from ITDP India and is linked to the Maharashtra Electric Vehicle Policy 2021.

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