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MINISTRY OF SCIENCE AND TECHNOLOGY



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DISTRICT AGRO-METEOROLOGY UNITS (DAMUS)

(Syllabus: GS Paper 3 – Agriculture)

The role of district agro-met offices in supporting farmers

What are agro-meteorological advisories? Why did the government shut down district agro-met offices?

Rishika Pardikar

The story so far:

Last week, *PTI* reported that the India Meteorological Department (IMD) is planning to revive District Agro-Meteorology Units (DAMUs) under the Gramin Krishi Mausam Sewa (GKMS) scheme. The IMD established 199 DAMUs in 2018 in collaboration with the Indian Council of Agricultural Research. The aim was to use weather data to prepare and disseminate sub-district level agricultural advisories. In March, DAMUs were shut down following an order issued by the IMD.

Why are agro-met units important?

Around 80% of farmers in India are small and marginal. They largely practise rain-fed agriculture in the backdrop of a decades-long farm crisis that is now overlaid with climate change-related weather variability. "The climate is changing. Monsoon onset and withdrawal dates have changed. We also see extended dry spells and heavy wet spells. Farmers should have this information because it affects crops," Madhavan Rajeevan, former secretary, Ministry of Earth Science, told The *Hindu*.

The DAMUs were located within Krishi Vigyan Kendras (KVKs). Scientists and researchers trained in meteorology and agriculture were recruited as DAMU staff. They used weather data provided by the IMD like rainfall, temperature and wind speeds to prepare agricultural advisories related to sowing and harvesting, usage of fertilizers and pesticides, irrigation etc.

These advisories were sent to millions of farmers across the country free-of-cost in local languages twice a week. They were shared via text messages, WhatsApp groups, newspapers and also through in-person communication from DAMU staff and KVK officers. Since these advisories provided weather information in advance, they helped farmers plan activities like irrigation. They also served as early warnings for extreme events like droughts and heavy rainfall. Many studies conducted over the years have stressed the benefits of agro-met advisories.

Why were DAMUs shut down?

According to a report by *Article-14*, the NITI Aayog misrepresented the role of DAMUs and also sought privatisation. NITI Aayog falsely claimed that agro-met data was automated, thereby undercutting the role of DAMU staff. In reality, the DAMU staff played a huge role in preparing agricultural advisories based on weather data by the IMD. These advisories were prepared at the block-level across districts and then communicated to farmers in local languages. NITI Aayog also sought monetisation of such services as opposed to the current scheme where agro-met information was provided free-of-cost to all farmers. "Closing DAMUs was not a wise decision. The [GKMS] scheme should have been strengthened to capture the needs of farmers across the country," said Dr. M. N. Thimmegowda, a professor at the University of Agricultural Sciences.

In February, the Gujarat-based

Gramin Krishi Mausam Sewa (GKMS) Scheme

- **Under:** Ministry of Earth Sciences.
- **Objective**: The primary aim of the scheme is to provide accurate, crop-specific advisories to farmers.
- **Implementing Agencies**: The scheme is implemented by the India Meteorological Department (IMD) in collaboration with State Agricultural Universities, the Indian Council of Agricultural Research, and other bodies.
- **Focus**: The scheme delivers crop and location-specific, weather-based agro advisories to support the farming community.

Context: India Meteorological Department (IMD) is planning to revive **District Agro-Meteorology Units (DAMUs)** under the Gramin Krishi Mausam Sewa (GKMS) scheme.

District Agro-Meteorology Units (DAMUs)

- **Established in**: 2018
- **Collaboration with**: Indian Council of Agricultural Research
- **Objective:** The aim was to use weather data to prepare and disseminate sub-district level agricultural advisories.
  - In March, DAMUs were shut down following an order issued by the IMD.

Importance of Agro-Metrological Units

- Around 80% of Indian farmers are small and marginal, primarily depending on rain-fed agriculture, making them vulnerable to weather changes.
- Climate change has increased weather variability, altering monsoon patterns, leading to extended dry and wet spells, which directly affect crop yields.
- Agro-met advisories provide crucial weather information such as changes in monsoon onset and withdrawal dates, helping farmers adjust their farming activities accordingly.
- District Agro-Met Units (DAMUs) are housed in Krishi Vigyan Kendras, where scientists and researchers trained in meteorology and agriculture provide weather-based agricultural support.
- DAMUs utilize weather data from the India Meteorological Department (IMD) on factors like rainfall, temperature, and wind speed to develop tailored advisories for farmers.

BUSINESS STANDARD
Sep 9

SUGAMYA BHARAT APP
(Syllabus GS Paper 2 – Social Issues)

Over 1.4K accessibility complaints filed on govt app, 75% solved: Data

Context: More than 1,400 complaints related to accessibility have been lodged through the government's flagship Sugamya Bharat mobile application since its launch in 2021, with approximately 75% of those resolved, according to official data.

Sugamya Bharat App

- **About:** It is an initiative of the Department of Empowerment of Persons with Disabilities (DEPwD), Ministry of Social Justice and Empowerment.
- **Purpose**: Designed to aid people with disabilities and the elderly, the app allows users to report accessibility problems in public infrastructure, transportation, and buildings.
- **Objective**: The app aims to identify issues and complaints related to accessibility at public places, capturing the location through Google Maps.
- **Uploading Geotagged Pictures**: Users can upload geotagged pictures to identify and understand which public places have accessibility issues for disabled people.
- **User Accessibility**: Any person facing difficulty or issues related to accessibility in India can raise their concerns or grievances through the app.
- **Registered Issues:** The app accepts only accessibility-related issues concerning Buildings, Transportation Systems, and ICT (websites and TV viewing).
- **Future Enhancements**: The government plans to enhance the app with AI capabilities, including an AI-powered chatbot and a multilingual interface.
- **Development Partnership**: A partnership has been established with the NGO Mission Accessibility and the research institute I-STEM to develop the AI-enabled app.

INDIAN EXPRESS

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SAKTHAN THAMPURAN
(Syllabus: GS Paper 1 – History)

SAKTHAN THAMPURAN AND HIS IMPORTANCE TO THRISSUR

ANAGHA JAYAKUMAR
NEW DELHI, SEPTEMBER 9

MINISTER OF State for Tourism and Thrissur MP Suresh Gopi on Saturday pledged to replace a statue of Sakthan Thampuran that was knocked over by a state transport bus in June by a new bronze statue if the Kerala government did not do so within 14 days.



The magnificent annual Thrissur Pooram festival in Thrissur. *ANI*

Sakthan Thampuran

Raja Rama Varma Kunjipillai or Rama Varma IX, better known today as Sakthan Thampuran, ruled over the Cochin kingdom from 1790 to 1805. He was born in 1751 to Ambika Thampuran and Chendose Aniyan Namboodiri of the Cochin royal family, but was raised by an aunt who called him Sakthan, meaning 'powerful'. The word *thampuran* is believed to be an appropriation of the Sanskrit *samrat*, meaning emperor.

The Cochin kingdom, which was part of the Late Chera Empire, covered the regions between Ponnani in Malappuram and Thottappally in Alappuzha in today's Kerala. (Ashalatha Thampuran, *History of the Cochin Royal Family: Tracing the Journey of Perumpadappu Swarupam*, 2019)

Strategist and ruler

Sakthan Thampuran became heir apparent in 1769 as an 18-year-old. He advised his king to maintain friendly relations with both the Dutch and the English, who were vying for a larger share of trade in the region.

Sakthan is said to have orchestrated Mysore's attempt to invade the Travancore kingdom, which had established relations with the English East India Company. This would result in the Powney treaty which freed the Cochin kingdom from its allegiance to Mysore, and helped formalise its relations with the British.

Sakthan Thampuran put an end to the institution of the *Yogiatirippads* — the erstwhile spiritual heads of the Vadakkumnathan and Perumanam temples, who had conspired against the previous Cochin king in his wars against the Calicut Zamorin — and entrusted temple management to the government.

He built a fearsome reputation for himself, and is said to have largely freed his kingdom of crime.

Thrissur and Pooram

Sakthan Thampuran transferred the seat of the Cochin kingdom from Thrippunithura to modern-day Thrissur. The Thekkinkadu Maidanam and the surrounding Swaraj Round became the basis for the city's elaborate road system and infrastructure.

The king encouraged merchants of all religions and British officials to relocate to the city. He also overhauled and firmed up the kingdom's finances, personally overseeing revenue management.

Sakthan Thampuran started the Thrissur Pooram in 1797 as an alternative to the Arattupuzha Pooram, then the largest temple festival in the state. The Thrissur Pooram was conceived as an opportunity for the major temples in Thrissur to come to pay their respects to Lord Shiva, the presiding deity at the Vadakkumnathan Temple.

Context: The Minister of State for Tourism and Thrissur MP vowed to replace the Sakthan Thampuran statue, which was knocked over by a state transport bus in June, with a new bronze statue if the Kerala government fails to act within 14 days.

Sakthan Thampuran

- **Birth and Background**: Sakthan Thampuran, born Raja Rama Varma Kunjipillai in 1751, was the son of Ambika Thampuran and Chendose Aniyan Namboodiri of the Cochin royal family.
- **Nickname**: Raised by an aunt who called him "Sakthan," meaning 'powerful,' a reflection of his strength and leadership potential.
- **Title**: The title "Thampuran" is derived from the Sanskrit word "samrat," meaning emperor.
- **Heir and Political Strategy**:
  - **Heir Apparent**: At age 18, in 1769, Sakthan Thampuran became the heir to the Cochin kingdom.
  - **Diplomatic Approach:** He advised maintaining good relations with both the Dutch and the English, who were competing for control over regional trade.
  - **Mysore Invasion Strategy**: He played a role in orchestrating Mysore's invasion of Travancore, leading to the Powney Treaty, which freed Cochin from Mysore's dominance and formalized British relations.
- **Religious and Administrative Reforms:**
  - **Temple Management:** Sakthan Thampuran abolished the institution of the Yogiatirippads, spiritual leaders who had conspired against the previous king, and transferred temple management to the government.
  - **Crime Reduction:** Under his reign, the kingdom saw a significant decrease in crime, establishing his fearsome reputation as a just and strong ruler.
- **Relocation of Capital**: Sakthan Thampuran moved the Cochin kingdom's capital from Thrippunithura to Thrissur, laying the foundation for modern-day infrastructure.
- **Thekkinkadu Maidanam**: This central ground and the surrounding Swaraj Round became vital elements in Thrissur's urban planning.
- **Economic and Cultural Impact**: The king encouraged merchants of all faiths, including British officials, to settle in Thrissur, strengthening the city's economy.
- **Revenue Management**: He personally oversaw financial reforms, ensuring stable and enhanced revenues for the kingdom.
- **Thrissur Pooram Festival**: In 1797, Sakthan Thampuran founded the Thrissur Pooram as a grand alternative to the Arattupuzha Pooram, allowing major temples in Thrissur to honor Lord Shiva at the Vadakkumnathan Temple.

PIB

Sep 9

PRADHAN MANTRI KISAN MAANDHAN YOJNA

(Syllabus: GS Paper 3 – Agriculture (Economy)

Five Successful Years of Pradhan Mantri Kisan Maandhan Yojana (PM-KMY)

Context: The Pradhan Mantri Kisan Maandhan Yojana (PM-KMY) has marked five successful years, significantly benefiting farmers through its pension scheme.

Pradhan Mantri Kisan Maandhan Yojna (PM-KMY)

- **Launched**: September 2019
- **About:** It has been providing social security to all land-holding Small and Marginal Farmers (SMFs) across the country.
- **Type:** Voluntary and contributory old-age pension scheme.
- **Enrollment and Contributions**: Small and marginal farmers can enroll by paying a monthly subscription to the Pension Fund. Farmers aged between 18 and 40 years need to contribute between Rs. 55 to Rs. 200 per month until they reach 60 years of age.
- **Pension Disbursement:** Upon turning 60, enrolled farmers receive a monthly pension of Rs. 3,000, subject to meeting the scheme's exclusion criteria.
    - The Life Insurance Corporation (LIC) manages the pension fund, and registration is facilitated through Common Service Centres (CSCs) and State Governments.
- **Eligibility Criteria**: Farmers with cultivable land holdings of up to 2 hectares and listed in state/UT land records as of August 1, 2019, are eligible. As of August 6, 2024, 23.38 lakh farmers have joined the scheme.
- **Regional Registration Statistics**: Bihar leads with over 3.4 lakh registrations, followed by Jharkhand with over 2.5 lakh registrations.

Key Benefits Under PM-KMY

- **Minimum Assured Pension**: Each subscriber to the scheme is guaranteed a minimum pension of Rs. 3000 per month upon reaching the age of 60 years
- **PM-KISAN Benefit**: SMFs can choose to use their PM-KISAN benefits to make voluntary contributions to the scheme. For this, eligible SMFs must sign and submit an enrolment-cum-auto-debit-mandate form.
- **Equal Contribution by Government:** The Central Government, through the Department of Agriculture Cooperation and Farmers Welfare, also contributes an equal amount as contributed by the eligible subscriber, to the pension Fund
- **Monthly Contributions**: Monthly contributions are in the range from Rs. 55 to Rs. 200, based on the farmer's age at the time of entry into the Scheme, according to the contribution chart.

INDIA TODAY Sep 9

BEPICOLOMBO SPACECRAFT
(Syllabus: GS Paper 3 – Sci and Tech)

Earth receives the first-ever picture of Mercury's South Pole from BepiColombo

Context: The European-Japanese BepiColombo mission has successfully completed its fourth flyby of Mercury, moving the spacecraft closer to its final orbit around the innermost planet.

BepiColombo Spacecraft

- **About**: It is a collaborative effort between the European Space Agency (ESA) and the Japan Aerospace Exploration Agency (JAXA) to explore Mercury.
  - The mission is named after Giuseppe "Bepi" Colombo, an Italian mathematician and engineer known for his work on Mercury's orbit.
- **Launched:** October 2018, and is designed to study various aspects of Mercury.
- **Arrival at Mercury**: November 2026
- **Mission Objectives**:
  - **Surface and Composition**: To investigate Mercury's surface and composition for insights into its geological history and formation.
  - **Magnetic Field and Magnetosphere:** To study Mercury's magnetic field and magnetosphere, enhancing understanding of its internal structure and solar wind interactions.
  - **Exosphere Analysis:** To measure and understand the composition and dynamics of Mercury's thin atmosphere.
  - **General Relativity**: To conduct experiments related to general relativity and improve our knowledge of gravity.
- **Spacecraft Components**:
  - **Mercury Planetary Orbiter (MPO)**: Provided by ESA, the MPO focuses on mapping Mercury's surface, studying its composition, and analyzing its topography.
  - **Mercury Magnetospheric Orbiter (MMO)**: Supplied by JAXA, the MMO investigates Mercury's magnetic field and magnetosphere.
- **Mission Complexity**: BepiColombo will be the second and most complex mission ever to orbit Mercury.
- **Orbital Challenges**: Close to the Sun and more difficult for an orbiter to reach than Saturn, this small desert world is the least explored planet of the inner Solar System.

BUSINESS STANDARD Page 5

INDIA-UAE RELATIONSHIP

(Syllabus: GS Paper 2 – IR)

India, UAE ink pacts on LNG supply, nuke energy

Five MoUs signed after Modi meets UAE Crown Prince Sheikh Khaled in Delhi

PHOTO: PTI

SUBHAYAN CHAKRABORTY
New Delhi, 9 September

India and the United Arab Emirates (UAE) on Monday signed five agreements to enhance cooperation in the energy sector and other areas, as Prime Minister Narendra Modi held wide-ranging talks with Abu Dhabi Crown Prince Sheikh Khaled bin Mohamed bin Zayed Al Nahyan during the latter's ongoing three-day visit to India.

The Crown Prince also called on President Droupadi Murmu, and visited Rajghat to pay his respects to Mahatma Gandhi. He will be visiting Mumbai on Tuesday.

An agreement was signed between the Abu Dhabi National Oil Company (Adnoc) and Indian Oil Corporation (IOC) for long-term supply of Liquefied Natural Gas (LNG).

Constituting the third long-term LNG supply deal signed by Adnoc with Indian-entities in less than a year, the pact will see Adnoc deliver 1 million tonnes of LNG every year from its Ruwais natural gas project for 15 years. Last year, Adnoc had signed a deal with IOC to deliver 1.2 million tonnes per annum.

Up to 49 per cent of India's local gas demand was met through imports in the April-July period of the current financial year. On the other hand, while gas meets only 6.2 per cent of India's energy needs, the Centre has been planning to raise this figure substantially in order to reduce the dependence on petroleum.

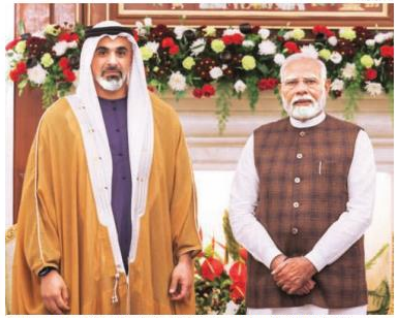
Adnoc also signed an MoU with the India Strategic Petroleum Reserve Limited (ISPRL), exploring additional opportunities for crude storage in India and the renewal of their storage and management agreement. ISPRL officials had earlier said it is preparing to lease out one of the 0.75 million tonnes-capacity storage caverns it operates in Mangalore. Adnoc has been storing crude in one of the caverns since 2018 and signed an agreement to use ISPRL's Padur facility as well.

A special purpose vehicle (SPV), ISPRL is under the petroleum ministry and manages 5.33 million metric tonnes (MMT) of strategic crude oil storage in three locations — Visakhapatnam, Andhra Pradesh, and Mangalore and Padur (Near Udupi) in Karnataka.

In a key move, a production concession agreement for the Abu Dhabi Onshore Block 1 has been signed between Urja Bharat — a joint venture of IOC and Bharat Petro resources Ltd, and Adnoc. The consortium holds a 100 per cent stake to explore and appraise oil and gas reserves in the 6,162-square-kilometer block around Ruwais, Adnoc's integrated refining and petrochemicals hub in the Al Dhafra region of Abu Dhabi.

In the field of nuclear energy, the two sides have signed an MoU for the operation and maintenance of the Barakah Nuclear Power Plant between Emirates Nuclear Energy Company (ENEC) and Nuclear Power Corporation of India Limited (NPCIL). Beginning electricity generation in March, the plant is the first in the Arabian Peninsula, the second in the Persian Gulf region and the first commercial nuclear power station in the Arab World.

An MoU was signed between the Government of Gujarat and Abu Dhabi Developmental Holding Company PJSC (ADQ) on development of food parks in India.



PM Narendra Modi (*right*) with Abu Dhabi's Crown Prince Sheikh Khaled bin Mohamed bin Zayed Al Nahyan at the Hyderabad House in New Delhi on Monday

KEY AGREEMENTS

- Agreement for long-term LNG supply between Abu Dhabi National Oil Company (Adnoc) and Indian Oil
- MoU between Emirates Nuclear Energy Company and Nuclear Power Corporation of India for operation and maintenance of Barakah Nuclear Power Plant
- Production concession agreement for Abu Dhabi onshore block-one between Urja Bharat and Adnoc
- Agreement between Gujarat government and Abu Dhabi Developmental Holding Company PJSC on setting up food parks in India

Context: India and the United Arab Emirates signed five agreements to boost cooperation in the energy sector and other areas during Abu Dhabi Crown Prince's three-day visit to India, where Prime Minister Narendra Modi held extensive talks.

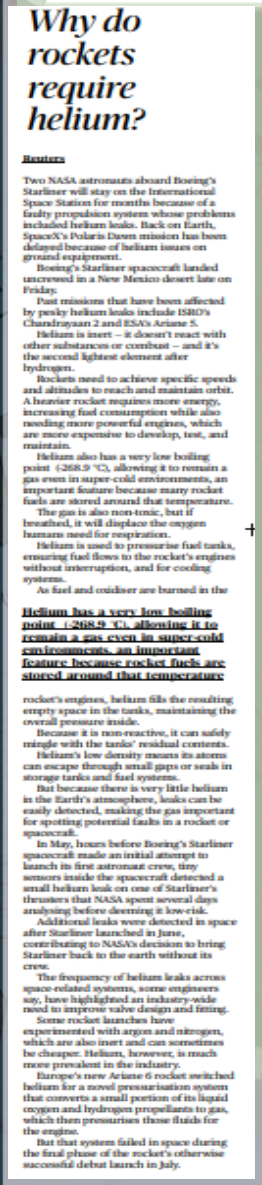
India-UAE Relationship

- **Political Relations**: India and the United Arab Emirates (UAE) established diplomatic relations in 1972. While the UAE opened its Embassy in India in 1972, the Indian Embassy in UAE was opened in 1973.
- **Multilateral Cooperation:** India and the UAE enjoy strong cooperation at the United Nations. Both countries are also currently part of several plurilateral platforms such as BRICS, I2U2 (India-Israel-UAEUSA) and UFI (UAE-France-India) Trilateral, etc. UAE was invited as a Guest Country to the G20 Summit held under India's Presidency.
- **Economic Relation**: Comprehensive Economic Partnership Agreement (CEPA) signed in 2022. UAE is India's third-largest trading partner and second-largest export destination.
  - The UAE was also the fourth largest investor in India in 2023 and the seventh largest source of Foreign Direct Investment overall.
  - Bilateral trade rising to USD 85 billion in 2022-23.
- **Defence Cooperation:** It was established in 2003 with the visit of the UAE Chief of Staff to India. Since then, the relationship has evolved, incorporating regular high-level exchanges, joint military exercises, and the establishment of an Annual Defence Dialogue.
  - The JDCC, set up in 2006, has become a pivotal platform for advancing bilateral defence relations.
  - **Military exercises**: Desert Cyclone, Air Exercise 'Desert Knight', In-UAE BILAT, Desert Eagle-II, Zayed Talwar and Exercise Desert Flag VIII.
- **Cultural Relation**: The Indian expatriate community of approximately 3.5 million is the largest ethnic community in UAE constituting roughly about 35% of the country's population. 15% of the diaspora is in the Emirate of Abu Dhabi and the rest in 6 Northern Emirates including Dubai.
  - **Joint Commemorative Stamp**: A stamp celebrating India's independence, UAE's formation, and bilateral relations was launched in 2022.
  - **India-UAE Cultural Council Forum:** Established in 2022, it aims to deepen cultural cooperation and people-to-people interactions.
  - The BAPS Hindu Mandir in Abu Dhabi.

THE HINDU Science II

HELIUM

(Syllabus: GS Paper 3 – Sci and Tech)



Why do rockets require helium?

Reuters

Two NASA astronauts aboard Boeing's Starliner will stay on the International Space Station for months because of a faulty propulsion system whose problems included helium leaks. Back on Earth, SpaceX's Polaris Dawn mission has been delayed because of helium issues on ground equipment.

Boeing's Starliner spacecraft landed uncrewed in a New Mexico desert late on Friday.

Past missions that have been affected by pesky helium leaks include ISRO's Chandrayaan 2 and ESA's Ariane 5.

Helium is inert – it doesn't react with other substances or combust – and it's the second lightest element after hydrogen.

Rockets need to achieve specific speeds and altitudes to reach and maintain orbit. A heavier rocket requires more energy, increasing fuel consumption while also needing more powerful engines, which are more expensive to develop, test, and maintain.

Helium also has a very low boiling point (-268.9 °C), allowing it to remain a gas even in super-cold environments, an important feature because many rocket fuels are stored around that temperature.

The gas is also non-toxic, but if breathed, it will displace the oxygen humans need for respiration.

Helium is used to pressurise fuel tanks, ensuring fuel flows to the rocket's engines without interruption, and for cooling systems.

As fuel and oxidiser are burned in the

Helium has a very low boiling point (-268.9 °C), allowing it to remain a gas even in super-cold environments, an important feature because rocket fuels are stored around that temperature

rocket's engines, helium fills the resulting empty space in the tanks, maintaining the overall pressure inside.

Because it is non-reactive, it can safely mingle with the tanks' residual contents.

Helium's low density means its atoms can escape through small gaps or seals in storage tanks and fuel systems.

But because there is very little helium in the Earth's atmosphere, leaks can be easily detected, making the gas important for spotting potential faults in a rocket or spacecraft.

In May, hours before Boeing's Starliner spacecraft made an initial attempt to launch its first astronaut crew, tiny sensors inside the spacecraft detected a small helium leak on one of Starliner's thrusters that NASA spent several days analysing before deeming it low-risk.

Additional leaks were detected in space after Starliner launched in June, contributing to NASA's decision to bring Starliner back to the earth without its crew.

The frequency of helium leaks across space-related systems, some engineers say, have highlighted an industry-wide need to improve valve design and fitting.

Some rocket launches have experimented with argon and nitrogen, which are also inert and can sometimes be cheaper. Helium, however, is much more prevalent in the industry.

Europe's new Ariane 6 rocket switched helium for a novel pressurisation system that converts a small portion of its liquid oxygen and hydrogen propellants to gas, which then pressurises those fluids for the engine.

But that system failed in space during the final phase of the rocket's otherwise successful debut launch in July.

Context: Two NASA astronauts aboard Boeing's Starliner will stay on the International Space Station for months because of a faulty propulsion system whose problems included helium leaks.

Helium

- **About:** It is the second most abundant element in the universe after hydrogen.
- **Property**: It is a colorless and odorless inert gas that has unique properties.
- **Origin**: Helium is a non-renewable natural resource that is most commonly recovered from natural gas deposits.
- **Reason to Choose Helium:**
  - **Inert Nature:** Helium is chemically non-reactive and does not combust, making it ideal for use in rocket systems.
  - **Lightweight:** As the second lightest element, helium helps reduce rocket weight, enhancing efficiency in achieving orbital speeds.
  - **Low Boiling Point**: Helium remains a gas even in extremely cold environments, matching the storage needs of rocket fuels.
- **Mechanism to Use:**
  - **Pressurization:** Helium pressurizes fuel tanks, ensuring smooth fuel flow to engines.
  - **Safe Mixing:** Its non-reactive nature allows helium to safely interact with residual tank contents.

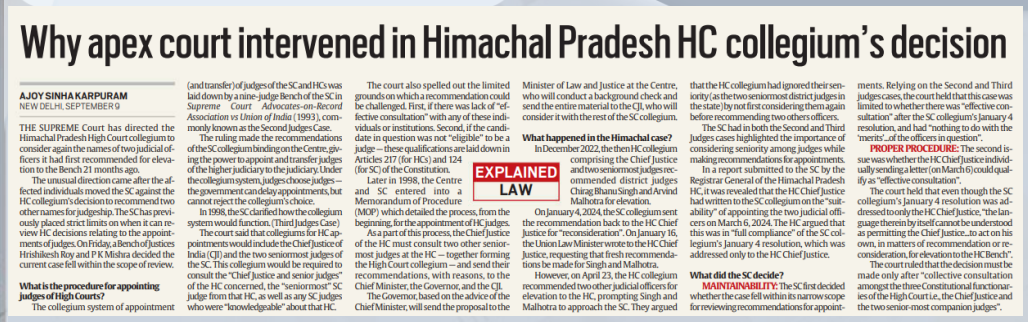
Reason of Leaks

- **Small Size, Easy Escape**: Helium atoms can leak through small gaps due to their small size and low molecular weight.
- **Leak Detection**: Its rarity in Earth's atmosphere makes helium leaks easy to detect, aiding in spotting potential fuel system issues.
- **Alternatives:** Argon and nitrogen have been tested as alternatives, but helium remains more common in the industry.
- **Innovative Pressurization**: Systems like Ariane 6's use of liquid oxygen and hydrogen failed during a test, showing the challenges of replacing helium.

INDIAN EXPRESS Page 13

APPOINTMENT OF HIGH COURT JUDGES

(Syllabus: GS Paper 2 – Polity)



Why apex court intervened in Himachal Pradesh HC collegium's decision

AJOY SINHA KARPURAM
NEW DELHI, SEPTEMBER 9

THE SUPREME Court has directed the Himachal Pradesh High Court collegium to consider again the names of two judicial officers it had first recommended for elevation to the Bench 21 months ago.

The unusual direction came after the affected individuals moved the SC against the HC collegium's decision to recommend two other names for judgeship. The SC has previously placed strict limits on when it can review HC decisions relating to the appointments of judges. On Friday, a Bench of Justices Hrishikesh Roy and P K Mishra decided the current case fell within the scope of review.

What is the procedure for appointing judges of High Courts?

The collegium system of appointment (and transfer) of judges of the SC and HCs was laid down by a nine-judge Bench of the SC in *Supreme Court Advocates-on-Record Association vs Union of India* (1993), commonly known as the Second Judges Case.

The ruling made the recommendations of the SC collegium binding on the Centre, giving the power to appoint and transfer judges of the higher judiciary to the judiciary. Under the collegium system, judges choose judges — the government can delay appointments, but cannot reject the collegium's choice.

In 1998, the SC clarified how the collegium system would function. (Third Judges Case)

The court said that collegiums for HC appointments would include the Chief Justice of India (CJI) and the two seniormost judges of the SC. This collegium would be required to consult the "Chief Justice and senior judges" of the HC concerned, the "seniormost" SC judge from that HC, as well as any SC judges who were "knowledgeable" about that HC.

The court also spelled out the limited grounds on which a recommendation could be challenged. First, if there was lack of "effective consultation" with any of these individuals or institutions. Second, if the candidate in question was not "eligible" to be a judge — these qualifications are laid down in Articles 217 (for HCs) and 124 (for SC) of the Constitution.

Later in 1998, the Centre and SC entered into a Memorandum of Procedure (MOP) which detailed the process, from the beginning, for the appointment of HC judges.

As a part of this process, the Chief Justice of the HC must consult two other seniormost judges at the HC — together forming the High Court collegium — and send their recommendations, with reasons, to the Chief Minister, the Governor, and the CJI.

The Governor, based on the advice of the Chief Minister, will send the proposal to the Minister of Law and Justice at the Centre, who will conduct a background check and send the entire material to the CJI, who will consider it with the rest of the SC collegium.

What happened in the Himachal case?

EXPLAINED LAW

In December 2022, the then HC collegium comprising the Chief Justice and two seniormost judges recommended district judges Chirag Bhanu Singh and Arvind Malhotra for elevation.

On January 4, 2024, the SC collegium sent the recommendation back to the HC Chief Justice for "reconsideration". On January 16, the Union Law Minister wrote to the HC Chief Justice, requesting that fresh recommendations be made for Singh and Malhotra.

However, on April 23, the HC collegium recommended two other judicial officers for elevation to the HC, prompting Singh and Malhotra to approach the SC. They argued that the HC collegium had ignored their seniority (as the two seniormost district judges in the state) by not first considering them again before recommending two others officers.

The SC had in both the Second and Third Judges cases highlighted the importance of considering seniority among judges while making recommendations for appointments.

In a report submitted to the SC by the Registrar General of the Himachal Pradesh HC, it was revealed that the HC Chief Justice had written to the SC collegium on the "suitability" of appointing the two judicial officers on March 6, 2024. The HC argued that this was in "full compliance" of the SC collegium's January 4 resolution, which was addressed only to the HC Chief Justice.

What did the SC decide?

MAINTAINABILITY: The SC first decided whether the case fell within its narrow scope for reviewing recommendations for appointments. Relying on the Second and Third judges cases, the court held that this case was limited to whether there was "effective consultation" after the SC collegium's January 4 resolution, and had "nothing to do with the 'merits'...of the officers in question".

PROPER PROCEDURE: The second issue was whether the HC Chief Justice individually sending a letter (on March 6) could qualify as "effective consultation".

The court held that even though the SC collegium's January 4 resolution was addressed to only the HC Chief Justice, "the language therein by itself cannot be understood as permitting the Chief Justice...to act on his own, in matters of recommendation or re-consideration, for elevation to the HC Bench".

The court ruled that the decision must be made only after "collective consultation amongst the three Constitutional functionaries of the High Court i.e., the Chief Justice and the two senior-most companion judges".

- **Grounds for Challenging Recommendations**: It can be challenged on two grounds: lack of effective consultation or if the candidate does not meet the eligibility criteria defined in Articles 217 and 124 of the Constitution.
- **Memorandum of Procedure (MOP):** Following the Third Judges Case, a MOP was created in 1998 detailing the appointment process for High Court judges, involving consultations and recommendations from the High Court collegium.
- **Procedure for High Court Appointments:** The Chief Justice of the High Court must consult two other seniormost High Court judges to form a collegium. Recommendations are sent to the Chief Minister, Governor, and CJI for further consideration.
- **Role of the Governor and Central Government**: The Governor, based on the Chief Minister's advice, forwards the proposal to the Minister of Law and Justice, who then conducts a background check and sends the material to the CJI. The CJI reviews the recommendations with the SC collegium.

Context: The supreme court has directed the Himachal Pradesh High Court collegium to consider again the names of two judicial officers it had first recommended for elevation to the Bench 21 months ago.

Procedure for Appointing Judges of High Courts

- **Article 124 of the Constitution:** Every Judge of the Supreme Court shall be appointed by the President on the recommendation of the National Judicial Appointments Commission.
- **Article 217 of the Constitution**: It states that the Judge of a High Court shall be appointed by the President in consultation with the Chief Justice of India (CJI), the Governor of the State.
- **Introduction to the Collegium System**: It was established by the Second Judges Case (1993), where a nine-judge Bench of the Supreme Court made the SC collegium's recommendations binding on the Centre.
- **Judicial Appointment and Transfer Powers:** The system grants the judiciary the authority to appoint and transfer judges. Although the government can delay appointments, it cannot reject the collegium's choices.
- **Clarification in the Third Judges Case**: In 1998, the Supreme Court clarified the collegium system's functioning in response to queries from President K R Narayanan. This established the procedure for High Court appointments and the composition of the collegium.
- **Composition of the High Court Collegium:** The High Court collegium includes the Chief Justice of India (CJI) and the two seniormost Supreme Court judges.
    - It must consult the Chief Justice and senior judges of the concerned High Court, the seniormost Supreme Court judge from that High Court, and any knowledgeable Supreme Court judges.

FINANCIAL EXPRESS

Sep 9

KAWASAKI DISEASE

(Syllabus: GS Paper 3 – Sci and Tech)

Kawasaki disease cases among children have increased in India after COVID-19 pandemic, reveals Paediatric Cardiologist

Context: A Bengaluru-based doctor recently reported a rise in Kawasaki disease cases among children following the devastating second wave of COVID-19.

Kawasaki Disease

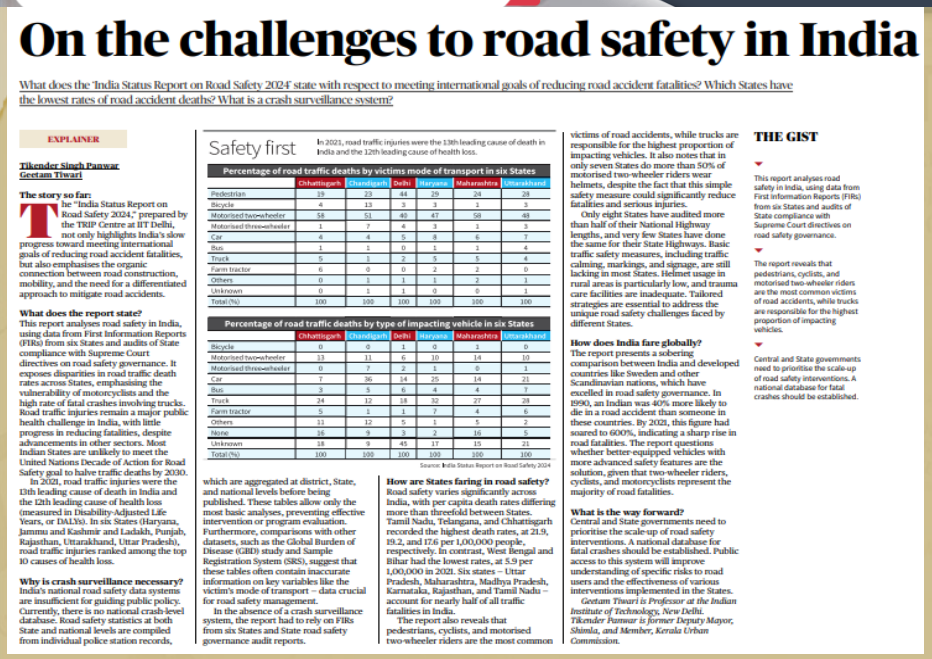
- **About**: It is a pediatric illness characterized by inflammation of blood vessels, primarily affecting young children, and is a significant cause of heart disease in this demographic.
- **Also known as**: Mucocutaneous lymph node syndrome.
- **First time described**: Japanese pediatrician Tomisaku Kawasaki in 1967.
- **Risk factors**:
    - **Age**. Children under 5 years old are at highest risk of Kawasaki disease.
    - **Sex**. Children who are assigned male at birth are slightly more likely to get Kawasaki disease.
    - **Ethnicity**. Children of Asian or Pacific Islander descent have higher rates of Kawasaki disease.
- **Causes**: The disease can lead to inflammation of coronary arteries and affect various body parts like lymph nodes, skin, and mucous membranes.
    - Its exact cause remains unidentified, with potential links to genetics, viruses, bacteria, and environmental factors.
- **Symptoms**: Prolonged high fever, rash, peeling skin on extremities, swelling, redness, eye inflammation, swollen glands, and distinctive oral manifestations like "strawberry tongue."
- **Treatment:** Intravenous gamma globulin (IVIG), which is an infusion through your child's IV and high-dose aspirin every six hours.

Study on New Syndrome

- A 2022 study published in the Frontiers in Pediatrics journal explored the impact of COVID-19 on children.
- **Discovery of MIS-C**: The study identified a new syndrome called multisystem inflammatory disease in children (MIS-C), reported by the WHO and CDC.
- **Differences from KD**: MIS-C is more frequently associated with left ventricular dysfunction (30%–40%), shock, gastrointestinal issues, and neurological symptoms compared to KD.
- **Unique Characteristics**: KD that follows SARS-CoV-2 infection shows distinct clinical differences from traditional Kawasaki disease.

INDIA STATUS REPORT ON ROAD SAFETY 2024

(Syllabus: GS Paper 2/3 – Gov. Policies/Infrastructure)



On the challenges to road safety in India

What does the 'India Status Report on Road Safety 2024' state with respect to meeting international goals of reducing road accident fatalities? Which States have the lowest rates of road accident deaths? What is a crash surveillance system?

EXPLAINER

Tikender Singh Panwar
Geetam Tiwari

The story so far:

The "India Status Report on Road Safety 2024," prepared by the TRIP Centre at IIT Delhi, not only highlights India's slow progress toward meeting international goals of reducing road accident fatalities, but also emphasises the organic connection between road construction, mobility, and the need for a differentiated approach to mitigate road accidents.

What does the report state?

This report analyses road safety in India, using data from First Information Reports (FIRs) from six States and audits of State compliance with Supreme Court directives on road safety governance. It exposes disparities in road traffic death rates across States, emphasising the vulnerability of motorcyclists and the high rate of fatal crashes involving trucks. Road traffic injuries remain a major public health challenge in India, with little progress in reducing fatalities, despite advancements in other sectors. Most Indian States are unlikely to meet the United Nations Decade of Action for Road Safety goal to halve traffic deaths by 2030.

In 2021, road traffic injuries were the 13th leading cause of death in India and the 12th leading cause of health loss (measured in Disability-Adjusted Life Years, or DALYs). In six States (Haryana, Jammu and Kashmir and Ladakh, Punjab, Rajasthan, Uttarakhand, Uttar Pradesh), road traffic injuries ranked among the top 10 causes of health loss.

Why is crash surveillance necessary?

India's national road safety data systems are insufficient for guiding public policy. Currently, there is no national crash-level database. Road safety statistics at both State and national levels are compiled from individual police station records, which are aggregated at district, State, and national levels before being published. These tables allow only the most basic analyses, preventing effective intervention or program evaluation. Furthermore, comparisons with other datasets, such as the Global Burden of Disease (GBD) study and Sample Registration System (SRS), suggest that these tables often contain inaccurate information on key variables like the victim's mode of transport – data crucial for road safety management.

In the absence of a crash surveillance system, the report had to rely on FIRs from six States and State road safety governance audit reports.

Safety first

In 2021, road traffic injuries were the 13th leading cause of death in India and the 12th leading cause of health loss.

Percentage of road traffic deaths by victims mode of transport in six States

	Chhattisgarh	Chandigarh	Delhi	Haryana	Maharashtra	Uttarakhand
Pedestrian	19	23	44	29	24	28
Bicycle	4	13	3	3	1	3
Motorised two-wheeler	58	51	40	47	58	48
Motorised three-wheeler	1	7	4	3	1	3
Car	4	4	5	8	6	7
Bus	1	1	0	1	1	4
Truck	5	1	2	5	5	4
Farm tractor	6	0	0	2	2	0
Others	0	1	1	1	2	1
Unknown	0	1	1	0	0	1
Total (%)	100	100	100	100	100	100

Percentage of road traffic deaths by type of impacting vehicle in six States

	Chhattisgarh	Chandigarh	Delhi	Haryana	Maharashtra	Uttarakhand
Bicycle	0	0	1	0	1	0
Motorised two-wheeler	13	11	6	10	14	10
Motorised three-wheeler	0	7	2	1	0	1
Car	7	36	14	25	14	21
Bus	3	5	6	4	4	7
Truck	24	12	18	32	27	28
Farm tractor	5	1	1	7	4	6
Others	11	12	5	1	5	2
None	16	9	3	2	16	5
Unknown	18	9	45	17	15	21
Total (%)	100	100	100	100	100	100

Source: India Status Report on Road Safety 2024

How are States faring in road safety?

Road safety varies significantly across India, with per capita death rates differing more than threefold between States. Tamil Nadu, Telangana, and Chhattisgarh recorded the highest death rates, at 21.9, 19.2, and 17.6 per 1,00,000 people, respectively. In contrast, West Bengal and Bihar had the lowest rates, at 5.9 per 1,00,000 in 2021. Six states – Uttar Pradesh, Maharashtra, Madhya Pradesh, Karnataka, Rajasthan, and Tamil Nadu – account for nearly half of all traffic fatalities in India.

The report also reveals that pedestrians, cyclists, and motorised two-wheeler riders are the most common victims of road accidents, while trucks are responsible for the highest proportion of impacting vehicles. It also notes that in only seven States do more than 50% of motorised two-wheeler riders wear helmets, despite the fact that this simple safety measure could significantly reduce fatalities and serious injuries.

Only eight States have audited more than half of their National Highway lengths, and very few States have done the same for their State Highways. Basic traffic safety measures, including traffic calming, markings, and signage, are still lacking in most States. Helmet usage in rural areas is particularly low, and trauma care facilities are inadequate. Tailored strategies are essential to address the unique road safety challenges faced by different States.

How does India fare globally?

The report presents a sobering comparison between India and developed countries like Sweden and other Scandinavian nations, which have excelled in road safety governance. In 1990, an Indian was 40% more likely to die in a road accident than someone in these countries. By 2021, this figure had soared to 600%, indicating a sharp rise in road fatalities. The report questions whether better-equipped vehicles with more advanced safety features are the solution, given that two-wheeler riders, cyclists, and motorcyclists represent the majority of road fatalities.

What is the way forward?

Central and State governments need to prioritise the scale-up of road safety interventions. A national database for fatal crashes should be established. Public access to this system will improve understanding of specific risks to road users and the effectiveness of various interventions implemented in the States.

Geetam Tiwari is Professor at the Indian Institute of Technology, New Delhi. Tikender Panwar is former Deputy Mayor, Shimla, and Member, Kerala Urban Commission.

THE GIST

This report analyses road safety in India, using data from First Information Reports (FIRs) from six States and audits of State compliance with Supreme Court directives on road safety governance.

The report reveals that pedestrians, cyclists, and motorised two-wheeler riders are the most common victims of road accidents, while trucks are responsible for the highest proportion of impacting vehicles.

Central and State governments need to prioritise the scale-up of road safety interventions. A national database for fatal crashes should be established.

Context: The **"India Status Report on Road Safety 2024"** highlights India's slow progress in reducing road accident fatalities and underscores the vital link between road construction, mobility, and the need for a tailored approach to curb accidents.

India Status Report on Road Safety 2024

- **Prepared by**: TRIP Centre at IIT Delhi.
- **Key findings of Road Safety in India:**
- **Road Safety Data Sources**: The report analyses road safety in India using FIR data from six States and compliance audits with Supreme Court directives on road safety governance.
- **Disparities**: Significant differences in road traffic death rates across States are highlighted, with motorcyclists being particularly vulnerable and trucks contributing heavily to fatal crashes.
- **Failure to Meet UN Road Safety Goals**: Most Indian States are unlikely to meet the United Nations Decade of Action for Road Safety goal to halve traffic deaths by 2030.
- **Rank of Road Traffic Injuries in 2021**: Road traffic injuries were the 13th leading cause of death and the 12th leading cause of health loss in India, as measured by DALYs.
- **Top Causes of Health Loss in States:** In six States (Haryana, Jammu and Kashmir and Ladakh, Punjab, Rajasthan, Uttarakhand, Uttar Pradesh), road traffic injuries ranked among the top 10 causes of health loss.
- **Comparison with Developed Countries**:
  - **Global Road Safety Comparison**: India fares poorly compared to countries like Sweden and other Scandinavian nations, where road safety governance has made significant strides.
  - **Rising Likelihood of Road Accident Fatalities**: In 1990, Indians were 40% more likely to die in a road accident than in Sweden. By 2021, this likelihood increased to 600%, indicating worsening road safety conditions.

Steps taken by government to reduce road accidents

- **Motor Vehicles Amendment Act, 2019**: Implements heightened penalties for traffic infractions, defective vehicles, and underage driving.
  - Establishes the Motor Vehicle Accident Fund to mandate compulsory insurance coverage.
- **Carriage by Road Act, 2007**: Governs common carriers, placing restrictions on their liability and specifying the declared value of transported goods.
- **Control of National Highways (Land and Traffic) Act, 2000**: Exercises control over land situated along National Highways, delineating rights of way and overseeing traffic flow.
- **National Highways Authority of India Act, 1998**: Establishes an authority responsible for the development, upkeep, and administration of National Highways.

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