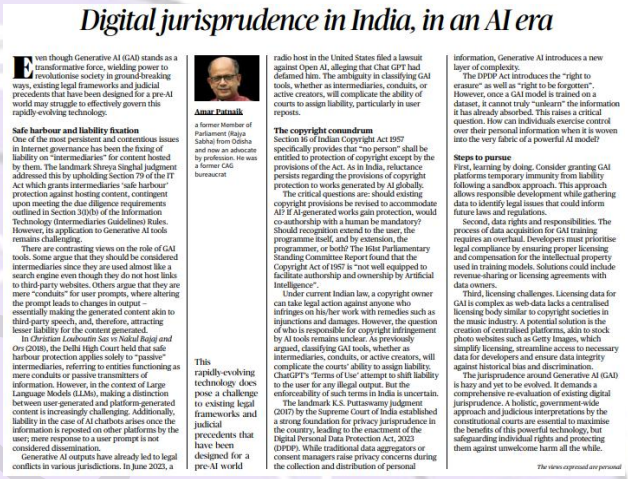
3rd July, 2024

1. Digital Jurisprudence in India, in an AI Era
GS 2 (Governance)

- **Why in News:** The advent of Generative AI (GAI) poses unique challenges to existing legal frameworks and judicial precedents. The current legal infrastructure, designed for a pre-AI era, struggles to govern the rapidly evolving technology, necessitating a comprehensive re-evaluation of digital jurisprudence.



Digital jurisprudence in India, in an AI era

Even though Generative AI (GAI) stands as a transformative force, wielding power to revolutionise society in ground-breaking ways, existing legal frameworks and judicial precedents that have been designed for a pre-AI world may struggle to effectively govern this rapidly-evolving technology.

Safe harbour and liability fixation

One of the most persistent and contentious issues in Internet governance has been the fixing of liability on "intermediaries" for content hosted by them. The landmark Shreya Singhal judgment addressed this by upholding Section 79 of the IT Act which grants intermediaries 'safe harbour' protection against hosting content, contingent upon meeting the due diligence requirements outlined in Section 3(1)(b) of the Information Technology (Intermediaries Guidelines) Rules. However, its application to Generative AI tools remains challenging.

There are contrasting views on the role of GAI tools. Some argue that they should be considered intermediaries since they are used almost like a search engine even though they do not host links to third-party websites. Others argue that they are mere "conduits" for user prompts, where altering the prompt leads to changes in output – essentially making the generated content akin to third-party speech, and, therefore, attracting lesser liability for the content generated.

In *Christian Louboutin Sas vs Nakul Bajaj and Ors* (2018), the Delhi High Court held that safe harbour protection applies solely to "passive" intermediaries, referring to entities functioning as mere conduits or passive transmitters of information. However, in the context of Large Language Models (LLMs), making a distinction between user-generated and platform-generated content is increasingly challenging. Additionally, liability in the case of AI chatbots arises once the information is reposted on other platforms by the user; mere response to a user prompt is not considered dissemination.

Generative AI outputs have already led to legal conflicts in various jurisdictions. In June 2023, a radio host in the United States filed a lawsuit against Open AI, alleging that Chat GPT had defamed him. The ambiguity in classifying GAI tools, whether as intermediaries, conduits, or active creators, will complicate the ability of courts to assign liability, particularly in user reposts.

Amar Patnaik
a former Member of Parliament (Rajya Sabha) from Odisha and now an advocate by profession. He was a former CAG bureaucrat

This rapidly-evolving technology does pose a challenge to existing legal frameworks and judicial precedents that have been designed for a pre-AI world

The copyright conundrum

Section 16 of Indian Copyright Act 1957 specifically provides that "no person" shall be entitled to protection of copyright except by the provisions of the Act. As in India, reluctance persists regarding the provisions of copyright protection to works generated by AI globally.

The critical questions are: should existing copyright provisions be revised to accommodate AI? If AI-generated works gain protection, would co-authorship with a human be mandatory? Should recognition extend to the user, the programme itself, and by extension, the programmer, or both? The 161st Parliamentary Standing Committee Report found that the Copyright Act of 1957 is "not well equipped to facilitate authorship and ownership by Artificial Intelligence".

Under current Indian law, a copyright owner can take legal action against anyone who infringes on his/her work with remedies such as injunctions and damages. However, the question of who is responsible for copyright infringement by AI tools remains unclear. As previously argued, classifying GAI tools, whether as intermediaries, conduits, or active creators, will complicate the courts' ability to assign liability. ChatGPT's 'Terms of Use' attempt to shift liability to the user for any illegal output. But the enforceability of such terms in India is uncertain.

The landmark K.S. Puttaswamy judgment (2017) by the Supreme Court of India established a strong foundation for privacy jurisprudence in the country, leading to the enactment of the Digital Personal Data Protection Act, 2023 (DPDP). While traditional data aggregators or consent managers raise privacy concerns during the collection and distribution of personal information, Generative AI introduces a new layer of complexity.

The DPDP Act introduces the "right to erasure" as well as "right to be forgotten". However, once a GAI model is trained on a dataset, it cannot truly "unlearn" the information it has already absorbed. This raises a critical question. How can individuals exercise control over their personal information when it is woven into the very fabric of a powerful AI model?

Steps to pursue

First, learning by doing. Consider granting GAI platforms temporary immunity from liability following a sandbox approach. This approach allows responsible development while gathering data to identify legal issues that could inform future laws and regulations.

Second, data rights and responsibilities. The process of data acquisition for GAI training requires an overhaul. Developers must prioritise legal compliance by ensuring proper licensing and compensation for the intellectual property used in training models. Solutions could include revenue-sharing or licensing agreements with data owners.

Third, licensing challenges. Licensing data for GAI is complex as web-data lacks a centralised licensing body similar to copyright societies in the music industry. A potential solution is the creation of centralised platforms, akin to stock photo websites such as Getty Images, which simplify licensing, streamline access to necessary data for developers and ensure data integrity against historical bias and discrimination.

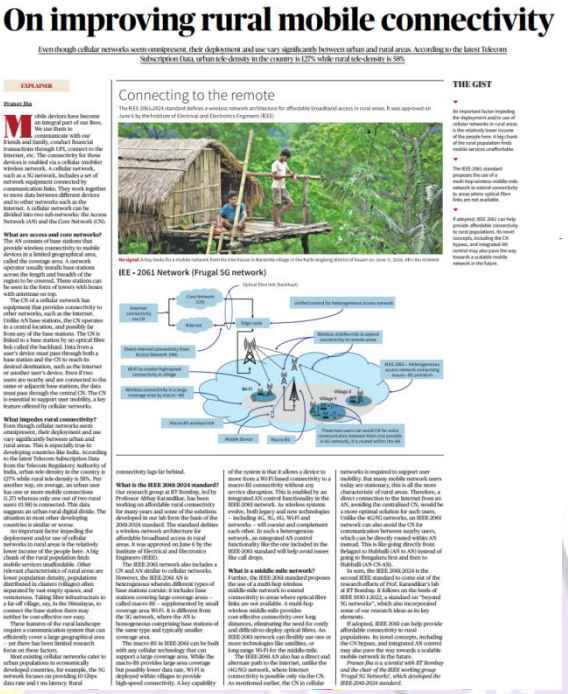
The jurisprudence around Generative AI (GAI) is hazy and yet to be evolved. It demands a comprehensive re-evaluation of existing digital jurisprudence. A holistic, government-wide approach and judicious interpretations by the constitutional courts are essential to maximise the benefits of this powerful technology, but safeguarding individual rights and protecting them against unwelcome harm all the while.

The views expressed are personal

- **Safe Harbour and Liability Fixation:**
  - **Introduction to the Issue:** The issue of liability fixation for intermediaries hosting content has been a persistent and contentious one. The Shreya Singhal judgment upheld Section 79 of the IT Act, granting intermediaries 'safe harbour' protection contingent on meeting due diligence requirements.
  - **Contrasting Views on GAI Tools:** GAI tools are seen by some as intermediaries, similar to search engines, while others view them as conduits for user prompts, complicating the application of safe harbour protections.
  - **Legal Conflicts:** Legal conflicts involving GAI outputs, such as the 2023 lawsuit against OpenAI, highlight the challenges in classifying GAI tools and assigning liability, particularly when user reposts are involved.
- **Copyright Conundrum**
  - **Existing Provisions:** Section 16 of the Indian Copyright Act 1957 does not accommodate AI-generated works, raising questions about the need for revisions to include AI-authored content.
  - **Questions of Authorship:** The 161st Parliamentary Standing Committee Report indicates that the current Copyright Act is ill-equipped to address authorship and ownership by AI, leading to uncertainty in liability for copyright infringement.
  - **Enforcement Challenges:** ChatGPT's 'Terms of Use' shift liability to the user, but the enforceability of such terms in India is uncertain, complicating legal actions against copyright infringements by AI tools.
- **Data Privacy and Personal Information**
  - **Privacy Jurisprudence:** The K.S. Puttaswamy judgment laid the foundation for privacy jurisprudence, leading to the Digital Personal Data Protection Act, 2023 (DPDP), which introduces rights to erasure and the right to be forgotten.
  - **Challenges with GAI Models:** GAI models' inability to unlearn absorbed data poses significant challenges in exercising control over personal information, despite DPDP provisions.
  - **Implications for Personal Data:** The integration of personal information into AI models raises critical questions about safeguarding individual rights while leveraging powerful AI technologies.
- **Steps to Pursue**
  - **Learning by Doing:** Granting temporary immunity from liability to GAI platforms through a sandbox approach allows responsible development and data gathering to inform future regulations.
  - **Data Rights and Responsibilities:** Overhauling data acquisition processes for GAI training to ensure proper licensing and compensation, potentially through revenue-sharing or licensing agreements.
  - **Licensing Challenges:** Creating centralised platforms for licensing data, akin to stock photo websites, to streamline access and ensure data integrity against historical biases and discrimination.

2. Improving Rural Connectivity
GS 3 (Infrastructure)

- **Why in the News:** Recently, IEEE approved a wireless network architecture for affordable broadband access in rural areas, developed at IIT Bombay.


On improving rural mobile connectivity

Even though cellular networks seem omnipresent, their deployment and use vary significantly between urban and rural areas. According to the latest Telecom Subscription Data, urban tele-density in the country is 127% while rural tele-density is 58%.

EXPLAINER

Pranav Jha

Connecting to the remote

The IEEE 2061-2024 standard defines a wireless network architecture for affordable broadband access in rural areas. It was approved on June 6 by the Institute of Electrical and Electronics Engineers (IEEE)

THE GIST

IEEE - 2061 Network (Frugal 5G network)

- **Fundamentals of Cellular Network:**
  - A cellular network, such as a 5G network, includes a set of network equipment connected by communication links.
  - They work together to move data between different devices and to other networks, e.g., the Internet.
  - A cellular network can be divided into two sub-networks: the **Access Network** (AN) and the **Core Network** (CN).
  - **Access Network**:
    - The AN includes base stations that provide wireless connectivity to mobile devices within a specific area, known as the coverage area.
    - These base stations are typically seen as towers with antennae boxes on top and are installed throughout the region by a network operator.
  - **Core Network**:
    - The CN is different from the AN as it contains equipment that connects to other networks, like the Internet.
    - The CN is centrally located and connected to base stations via optical fiber links called backhaul.
    - The CN is crucial for maintaining user mobility, a key feature of cellular networks.
- **Challenges of Mobile Connectivity in Rural Connectivity in India:**
  - Even though cellular networks seem to be everywhere, their availability and use differ greatly between urban and rural areas, especially in developing countries like India.
  - According to recent data from the Telecom Regulatory Authority of India, urban areas have a tele-density of 127%, meaning each person on average has more than one mobile connection.
  - In contrast, **rural areas have a tele-density of 58%, meaning only about half the rural population has a mobile connection**.
  - This shows a clear urban-rural digital divide, a common issue in many developing countries.
  - **Reasons for Lack of Sufficient Mobile Connectivity in Rural Areas**:
    - One major reason for the lack of cellular networks in rural areas is the lower income of rural residents, making mobile services too expensive for many.
    - Additionally, rural areas have lower population densities, scattered populations in villages separated by large empty spaces, and remote locations.
    - For instance, bringing fiber infrastructure to a distant village in the Himalayas is neither cost-effective nor easy.
    - These rural characteristics call for a communication system that can cover large areas efficiently.
    - However, most research and development in cellular networks focus on urban needs in developed countries, like achieving high data rates and low latency with 5G.
    - As a result, rural connectivity remains significantly behind.
- **IIT-Bombay Develops Wireless Network Architecture IEEE 2061-2024 Standard:**
  - The IEEE 2061-2024 standard defines a wireless network architecture for affordable broadband access in rural areas.
  - It was approved on June 6 by the Institute of Electrical and Electronics Engineers (IEEE).
  - The IEEE-2061 network also includes a CN and AN similar to cellular networks.
  - However, the IEEE-2061 AN is heterogenous wherein different types of base stations coexist.
  - It is different from the 5G network, where the AN is homogeneous comprising base stations of the same type and typically smaller coverage area.

- **Middle Mile Network**:
  - The IEEE-2061 standard proposes the use of a multi-hop wireless middle-mile network to extend connectivity to areas where optical-fiber links are not available.
  - A multi-hop wireless middle-mile provides cost-effective connectivity over long distances, eliminating the need for a costly and difficult-to-deploy optical fiber.
  - The IEEE2061-2024 provides a direct and alternative path to the Internet, unlike 4G/5G networks, which connect only through the CN.
  - While the CN supports user mobility, many rural users remain stationary. Therefore, a direct Internet connection from AN, bypassing the CN, is more efficient for these users.
  - Additionally, the IEEE-2061 network **allows direct communication between nearby users within the AN, avoiding the CN, similar to traveling directly between two towns without detouring through a distant city**.

- **About BharatNet Project:**
  - BharatNet is the world's largest optical fiber-based rural broadband connectivity project.
  - It is executed by **Bharat Broadband Network Limited** (BBNL), a special purpose organisation under the **Telecom Ministry**.
  - It is an ambitious rural internet access programme. An initiative by the Union government under its **Digital India**
- **Features & Benefits of BharatNet:**
  - Using optical fibre, the **programme is intended to bring broadband internet connectivity to each of the more than 2.5 lakh gram panchayats across the country.**
  - The government intends to provide a minimum of **100 Mbps bandwidth** at each Gram Panchayat through BharatNet so that everyone, especially those in rural India, can access online services.
  - As part of BharatNet project, the **Centre will also provide last mile connectivity through Wi-Fi and other means and is setting up Wi-Fi hotspots in all gram panchayats.**
- **Progress So Far:**
  - The initial scope of the project was to cover 2.5 lakh gram panchayats in the country with optical fiber by August 2021.
  - However, that deadline was missed.
  - **Around 1.94 lakh villages have been connected at present and rest of the villages are expected to be connected in the next 2.5 years**.
  - The project progress was affected due to lockdown and movement restrictions due to COVID pandemic.
  - In the Union Budget 2022-23, the **Government extended the project deadline to 2025**.

3. Advanced Medium Combat Aircraft prototype expected by 2028-29

GS 2 (Security)

- **Why in news:** The Defence Ministry is planning to involve the private sector significantly in the design and development of the indigenous fifth-generation fighter aircraft, the Advanced Medium Combat Aircraft (AMCA). This involvement is crucial for the timely execution of the project, with the first prototype expected by 2028-29, according to official sources.

Advanced medium combat aircraft prototype expected to be ready by 2028-29

Dinakar Peri
NEW DELHI

As the project for the design and development of the indigenous fifth generation fighter aircraft (FGFA), Advanced Medium Combat Aircraft (AMCA), makes progress, the Defence Ministry is working out a model for bringing in the private sector in a big way, which is important for timely execution of the project, according to official sources. The first prototype is expected to be ready by 2028-29.

"The design of the AMCA is ready. The prototype is expected to roll out by 2028-29 and the production is expected to begin from 2032-33. The target is to have it ready for induction in 2034, a decade from project sanction," an official source said. In preparation to have the manufacturing and deliveries on track, there is significant private industry involvement that is being envisaged. "We have to decide a model for private sector involvement. A model is expected to be worked out in the next six months," an official source said.

The Defence Ministry has already issued an Expression of Interest (EoI) to the industry and three responses were received. The target is to have the AMCA ready for induction by 2034

The AMCA project is particularly critical as it is India's only FGFA that is planned for induction at a time when a series of such FGFA development projects are making progress worldwide. China, which has made great progress in the development and deployment of FGFAs, has recently deployed its twin-engine J-20 FGFA in Tibet bordering India.

CCS clearance

The AMCA project got sanction from the Cabinet Committee on Security (CCS) in March. It is envisaged as a 25-tonne twin-engine stealth aircraft with internal weapons bay and diverterless supersonic intake which has been developed in India for the first time.

It is intended to have an internal carriage of 1,500 kg of payload and 5,500 kg of external payload with 6,500 kg of internal fuel. Hindustan Aeronautics Limited (HAL), which is the production agency for the project, has already initiated manufacturing activities.

- **Fifth-generation fighter jets**
  - Fifth-generation fighter jets are designed to carry out a range of missions, such as air-to-air combat and ground attack.
  - They have plain surfaces, specially shaped exhaust nozzles, and engines located in the plane's body to hide heat signatures.
  - They also have special radars to detect the aircraft's own radar emissions.
  - Only a few countries have built a fifth-generation stealth fighter aircraft.
  - The list of the aircraft currently in service includes the F-22 Raptor and F-35A Lightning II of the US, the Chinese J-20 Mighty Dragon, and the Russian Sukhoi Su-57.
- **Advanced Medium Combat Aircraft (AMCA)**

- **About**
  - Advanced Medium Combat Aircraft (AMCA) is India's fifth-generation fighter multirole fighter jet.
  - This aircraft will be bigger than other fighters in the Indian Air Force inventory.
  - The aircraft will put India in a select group of nations that have their own fifth-generation fighter aircraft.
- **Organisations involved**
  - The Aeronautical Development Agency (ADA) under the Defence Research and Development Organisation (DRDO) will be the nodal agency for executing the programme and designing the aircraft.
  - It will be **manufactured by state-owned Hindustan Aeronautics Limited (HAL).**
- **Features**
  - **Stealth**
    - The 25-tonne twin-engine aircraft will have advanced stealth features to avoid detection by enemy radar.
  - **Fuel & Weapons**
    - The aircraft will have a large, concealed internal fuel tank of 6.5-tonne capacity, and an internal weapons bay for a range of weapons, including indigenous weapons, to be buried in its belly.
  - **Engine**
    - The AMCA Mk1 variant will have the US-built GE414 engine of the 90 kilonewton (kN) class.
    - The more advanced AMCA Mk2 will fly on the more powerful 110kN engine.
    - This will be developed indigenously by DRDO's Gas Turbine Research Establishment (GTRE) in collaboration with a foreign defence major.
- **Significance of Advanced Medium Combat Aircraft (AMCA)**
  - **India's indigenous fifth-generation fighter aircraft**
    - The AMCA will be India's indigenous fifth-generation fighter aircraft.
    - The indigenous Light Combat Aircraft (LCA) Tejas is a 4.5-generation single-engine multirole aircraft.
  - **Advance stealth feature**
    - What will set this aircraft apart from the existing fourth-generation is primarily its stealth features.
    - The aircraft will have a low electro-magnetic signature, which will make it difficult for enemy radar to detected it.
    - At the same time, it will have powerful sensors and new weapons, so it is able to register the signature of enemy aircraft and take them out.
  - **Higher utilisation time and smaller serviceability**
    - Another important aspect would be to ensure a higher utilisation time and smaller serviceability or maintenance periods for the aircraft.
    - This will be aided by the inclusion of a comprehensive Integrated Vehicle Health Management (IVHM) system to keep track of multiple structural components, and to assess the condition of the aircraft in real-time.
  - **IAF's dwindling numbers**
    - The IAF currently has around 30 fighter squadrons against the sanctioned strength of 42.
    - This number is expected to go down further as squadrons of MiG-21s, MiG-29s, Jaguars, and Mirage 2000s are scheduled to be phased out by the middle of the next decade.
    - The IAF has indicated that it requires seven squadrons of the AMCA to begin with.
  - **Strategic significance**
    - China has made great progress in the development and deployment of fifth-generation fighter aircraft.
    - It has recently deployed its twin-engine J-20 FGFA in Tibet bordering India.
  - **Clearance from Cabinet Committee on Security (CCS)**
    - The AMCA project, sanctioned by the Cabinet Committee on Security (CCS) in March 2024, is set to develop a 25-tonne twin-engine stealth aircraft with advanced features, aiming for a prototype by 2028-29.
    - The development of AMCA is planned to be carried out in two phases:
      - a MK1 with the General Electric F414 engine and
      - a Mk2 with a more powerful engine planned to be co-developed in partnership with Saran of France for which discussions are under way.

4. Hathras Stampede
Recent events of importance

- **Why in News:** Stampedes during religious gatherings are tragically common in India, often due to poor crowd management and safety oversights. Recently, a stampede in Uttar Pradesh's Hathras district claimed the lives of at least 116 people, predominantly women, highlighting the urgent need for effective crowd control strategies.


INITIAL REPORT SUGGESTS PEOPLE STUMBLED WHILE GATHERING SOIL PREACHER WALKED ON; CM ORDERS PROBE

At least 116 killed in stampede at Hathras religious gathering, most victims women

Satsang by local preacher had SDM permission but large crowd gathered: officials

DHEERAJ MISHRA & NEETIKA JHA
HATHRAS, JULY 2

A SATSANG by a local preacher in Uttar Pradesh's Hathras turned into the site of a tragedy as 116 people, almost all of them women, were killed in a stampede on Tuesday.

According to officials, the event in Phulrai village was addressed by Narayan Sakar Vishwa Hari aka Bhole Baba, who has been active in the region and adjoining districts for 27 years.

A preliminary investigation points to a host of factors that led to the incident — thousands more than expected turning up at the satsang; many falling on the uneven surface while trying to collect soil the preacher had walked on before he left the venue; and healthcare facilities struggling to keep pace with the rush of dead and injured.

Uttar Pradesh Chief Secretary Manoj Kumar Singh said after visiting the area, "A total of 116 people have died — seven children, one man, and the rest women. Seventy-two deceased have been identified so far. No person is missing."

"The chief sevadar (seeking for the preacher) had given an application that around 80,000 people will attend the programme. But many more arrived, breaching the limit. A huge police force was deployed. I am told that people rushed to touch his feet and tried to collect soil (from where he walked), and a stampede took place. Many people fell in a nearby drain," he said.

There were a total of 78
CONTINUED ON PAGE 2

A victim of the stampede at the district hospital in Hathras. Abhinav Saha FULL COVERAGE, P 7

'Bhole Baba': UP Police constable who became a self-styled preacher

MANISH SAHU
LUCKNOW, JULY 2

BEFORE HE became Narayan Sakar Vishwa Hari or Bhole Baba, the self-styled preacher who organised the satsang on Tuesday, he was Suraj Pal Singh, a constable with the Uttar Pradesh Police.

Sources said Singh, 58, hails from a Dalit family in Bahadur Nagar village of Kasganj district, about 45 km from Hathras where the stampede occurred.

"After serving in the police force for about a decade, he left the job... His last posting was in Agra," said a police officer who visited Singh's village after the stampede. While the exact date is not known, Singh is reported to have left the police force some time in the 1990s.

"He is married and does not have any children. After leaving the police force, he adopted the name Bhole Baba, while his wife is known as Matashree," said Zaffar Ali, husband of Bahadur Nagar village pradhan, Najin Khanam. Ali said Singh's family was well-off, and he was the second of three brothers. While his elder brother died a few years ago, his younger brother, Rakesh, is with the Uttar Pradesh Police.

Singh, 58, hails from a Dalit family in Bahadur Nagar village of Kasganj district, about 45 km from Hathras where the stampede occurred.

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- **What is a Stampede?**
  - A stampede is characterized by the chaotic movement of a crowd, resulting in injuries and fatalities. It typically occurs due to panic triggered by perceived danger, overcrowding, or the rush to achieve something desirable.
  - **Causes of Stampedes**: Stampedes are primarily caused or exacerbated by panic and can be prevented through improved design and management of spaces where mass gatherings occur. Factors contributing to stampedes include:
    - Lack of adequate lighting
    - Uncontrolled flow of crowds
    - Structural failures like collapsed barriers or buildings
    - Blocked exits or evacuation routes
    - Inefficient design of infrastructure such as entrance doors
    - Fire hazards and other safety oversights
  - **Reason behind casualties:**
    - **Traumatic asphyxia:** There is partial or complete cessation of respiration due to external compression of the thorax and/or upper abdomen.
    - **Myocardial infarction**: Heart attack, caused by decreased or complete cessation of blood flow to a portion of the heart
    - **Direct crushing** injury to internal organs, head injuries, and neck compression.
- **Preventive Measures**
  - Effective crowd management is crucial in mitigating stampede risks. Strategies include:
    - **Live Surveillance:** Monitoring crowd density, bottlenecks, and disturbances to anticipate and prevent incidents.
    - **Communication:** Coordination between organizers, local authorities, and law enforcement to manage crowd behavior and ensure timely interventions.
- **NDMA's guidelines for Crowd Management**
  - The National Disaster Management Authority (NDMA) has formulated guidelines for integrated crowd management, which are crucial for ensuring public safety during various types of events. Here are the simplified pillars and considerations as per NDMA's guidelines:
    - **Pillars of Integrated Crowd Management**:
      - **Capacity Planning**: Assessing the venue's capacity to accommodate the expected number of attendees. Ensuring adequate facilities like exits, seating arrangements, and emergency services.
      - **Risk Assessment**: Identifying potential hazards and risks associated with the event. Evaluating factors like crowd density, weather conditions, and infrastructure vulnerabilities.
      - **Preparedness Planning**: Developing detailed plans and procedures for managing crowds effectively.
      - **Incident Response**: Establishing protocols for responding to emergencies such as medical emergencies, fires, or crowd disturbances.
      - **Capacity Building:** Training personnel involved in crowd management on safety protocols and crowd control techniques. Educating the public on safe behavior during events to prevent panic and stampedes.
    - **Parameters for Planning and Management:**
      - **Type of Event:** Whether it's religious, educational, sports, entertainment, etc.
      - **Expected Crowd:** Considering demographics like age, gender, and economic backgrounds.
      - **Crowd Motives**: Understanding why attendees are coming (social, academic, religious, etc.).
      - **Venue:** Assessing location, layout (open or closed), accessibility, and infrastructure.
      - **Stakeholder**s: Involving NGOs, local authorities, and community members to enhance coordination and support.

- **Notable Stampede Incidents**
  - **Moscow, Russia (1896):** Over 1,000 deaths due to a crowd surge over souvenir rumors.
  - **Allahabad, India (1954):** Around 800 fatalities during the Kumbh Mela due to poor crowd control.
  - **Lima, Peru (1963):** 326 deaths after tear gas use during a football match triggered panic.
  - **Wai, India (2005):** Over 340 deaths during a temple pilgrimage due to slippery steps.

5. Abhaya Mudra
GS 1 (Art and Culture)

- **Why in News:** 'Abhaya mudra' or the motif of an open palm, has become a topic of discussion in India's Parliament.

Abhaya mudra, Buddhist & Hindu cultural symbol conveying freedom from fear

ARJUN SENGUPTA
NEW DELHI, JULY 2

IN HIS first speech as LoP in Lok Sabha, Rahul Gandhi on Monday invoked the *abhaya mudra*, the gesture of the raised open palm that is commonly understood as conveying reassurance and a freedom from fear. He portrayed the government as a regime based on fear, and stressed that the culture of fear is alien to the Hindu religion and Indian civilisation.

"The first idea in this image that we defend is the idea of confronting our fear and never being scared," Rahul said. The *abhaya mudra*, he said, was a common thread in the depictions of Lord Shiva, Guru Nanak, and Jesus Christ, and also figured in Islam, Buddhism, and Jainism.

EXPLAINED CULTURE

Mudras in Buddhism

In Sanskrit, the term *mudra* could mean a seal, mark, sign, or currency, but in the Buddhist context, it refers to "hand and arm gestures made during the course of ritual practice or depicted in images of buddhas, bodhisattvas, tantric deities, and other Buddhist images" (Buswell and Lopez, *The Princeton Dictionary of Buddhism*, 2013).

Mudras are most commonly associated with visual depictions of the Buddha (or *Buddharupa*): different gestures convey different moods and meanings, signifying the subtle manifestations of the Buddha's states of realisation.

For about 500 years after the Buddha, who lived in the 6th or 5th Century BCE, the person of the great teacher was not depicted in the form of an image or sculpture. At Sanchi, for instance, the Buddha is symbolised by a vacant throne or a footprint.

The earliest depictions of the Buddha in physical form date to roughly around the turn of the first millennium. Depictions started appearing in the Gandhara art from the northwestern edge of the Indian subcontinent (present day Pakistan and Afghanistan), which drew on Hellenistic influences, and later in the art of the Gupta period, in the Gangetic plains.

In the earliest depictions of *Buddharupa*, four *mudras* can be found: the *abhaya mudra*, or "gesture of fearlessness"; the *bhumisparsha mudra*, or "Earth-touching gesture"; the *dharmachakra mudra*, or "gesture of the wheel of dharma"; and the *dhyana mudra*, or "gesture of meditation".

With the evolution of Mahayana/Greater Vehicle) and Vajrayana/Thunderbolt Vehicle) Buddhism, and the proliferation of Buddhist artwork outside India, hundreds of *mudras* entered Buddhist iconography.

In tantric Buddhist traditions, the *mudras* came to be associated with dynamic ritual hand movements, where they "symbolised material offerings, enacted forms of worship, or signified relationships with visualised deities" (Buswell and Lopez).

Gesture of fearlessness

The *abhaya mudra* is described by Buswell and Lopez as one "typically formed with the palm of the right hand facing outward at shoulder height and the fingers pointing up... Occasionally, the index, second, or third finger touches the thumb, with the remaining fingers extended upward".

Kushana-period Buddha sculpture, depicted with the *abhaya mudra*, currently preserved in Mathura museum. *Wikimedia Commons*

In some cases, both hands may simultaneously be raised in this posture in a "double *abhaya mudra*".

In Buddhist tradition, the *abhaya mudra* is associated with the Buddha immediately after he obtained Enlightenment, "portraying a sense of the security, serenity, and compassion that derive from enlightenment" (Buswell and Lopez).

The "gesture of fearlessness [also] identifies the moment when Shakyamuni (the Buddha) tamed the mad elephant... illustrating the Buddha's ability to grant fearlessness to his followers" (Buswell, *Encyclopaedia of Buddhism*, 2004).

According to Buddhist legend, Devadatta, a cousin and a disciple of the Buddha, upon not being granted the special treatment he expected, plotted to harm the Enlightened One. He fed a wild elephant intoxicants and drove her on the Buddha's path. As the disciples scattered before the charging animal, the Buddha raised his hand in the *abhaya mudra* of love and kindness. The elephant is said to have calmed down immediately, gone down on her knees, and bowed to the Buddha.

This is why the *abhaya mudra* is also seen as a "gesture of protection" or "gesture of granting refuge".

In Hindu religion

Over time, the *abhaya mudra* appeared in depictions of Hindu deities, and the Buddha himself was absorbed into the Hindu pantheon as the ninth *avatar* of the Puranic god Vishnu.

"Hindus came to regard the Buddha as an *avatar* of Vishnu between AD 450 and the sixth century," the Indologist Wendy Doniger wrote in her classic *The Hindus: An Alternative History*. The first mention of the Buddha *avatar* came in the *Vishnu Purana* (400-500 CE).

As multiple traditions, practices, and cultural influences mingled in the great melting pot of the Hindu religion, manifestations were seen in art and visual depiction of gods. The *abhaya mudra* was seen in the depictions, most commonly of Lord Shiva, Lord Vishnu, and Lord Ganesha.

- **What is Abhaya Mudra?**
  - In Sanskrit, "mudra" translates to 'seal', 'mark', or 'gesture'. It holds deep cultural significance in Hinduism, Buddhism, and Jainism, influencing various aspects like **iconography, dance forms, yoga, tantra, and martial arts.**
  - **Abhaya Mudra:** This specific mudra represents an open palm gesture symbolizing fearlessness and protection.
  - It can be widely seen in **Hindu, Buddhist, and Jain iconography**, it is a powerful symbolic gesture.
  - The Abhaya Mudra typically involves the right hand raised to shoulder height, with the palm facing outward and fingers upright. The left hand may rest in the lap or perform another gesture simultaneously.
  - **Symbolic Meaning:** Known for its **protective qualities**, the Abhaya Mudra signifies the dispelling of fear and offers reassurance to those who perceive it.
  - In Indian culture, the Abhaya Mudra serves as a timeless emblem of courage and safeguarding, depicted prominently in religious art and practices across various traditions.

6. Critical Mineral Recycling
GS 3 (Economy)

- **Why in News:** The **Ministry of Mines** in India is gearing up to introduce a **Production Linked Incentive (PLI) scheme** aimed at enhancing the recycling of critical minerals. This initiative comes in response to a tepid response observed in recent auctions of critical mineral blocks. The scheme aligns with recommendations from NITI Aayog and complements the **Battery Waste Management Rules (BWMR), 2022.**

FOLLOWS NITI AAYOG RECOMMENDATIONS

Critical mineral recycling: Govt plans PLI scheme to boost circular economy

AGGAM WALIA
NEW DELHI, JULY 2

THE MINISTRY of Mines is in the initial stages of designing a Production Linked Incentive (PLI) scheme to boost the recycling of critical minerals in India, *The Indian Express* has learnt. This move aims to foster a circular economy and bolster domestic supply chains, following a lacklustre response to recent auctions of critical mineral blocks.

The proposed PLI scheme aligns with policy recommendations from NITI Aayog, the government's apex think tank, and complements the Battery Waste Management Rules (BWMR), 2022, which mandate phased recycling of used electric vehicle (EV) lithium-ion batteries from 2026 onwards.

In an office memorandum dated May 1, 2024, the Mines Ministry circulated a concept note on a PLI scheme envisaged for the recycling of critical minerals, people familiar with the developments said. The note was shared with key government stakeholders, including the Department of Science & Technology, the Ministry of New and Renewable Energy (MNRE), and the Ministry of Heavy Industries (MHI), for comments and feedback. The ministry is yet to hear back from MNRE and MHI.

The PLI scheme, while yet to be finalised, will target e-waste recycling – often referred to as "urban mining" – to recover critical minerals such as lithium, copper, cobalt, graphite, chromium, and silicon. These minerals are crucial for clean energy technologies like solar PV modules, wind turbines, energy storage systems, and EVs, as well as consumer electronics. Feedback from MNRE and MHI is vital, given MNRE's role in solar and wind energy policies and MHI's involvement in the development of the EV ecosystem.

Similar to other PLI schemes, the one under consideration by the Mines Ministry will incentivise production of recycled critical minerals for secondary use and promote investment in advanced recycling technologies and infrastructure, industry sources said. The quantum of incentive is likely to vary based on the type and value of minerals recycled.

Some recyclers argue the scheme should benefit only those extracting high-purity critical minerals suitable for reuse as primary inputs. Others advocate for a wider scope that includes the production of black mass, which is shredded and processed e-waste rich in minerals including lithium, manganese, cobalt, and nickel, since most Indian recyclers currently lack capacities to extract battery-grade minerals from black mass.

India's e-waste generation is poised to surge, driven by rapid growth in solar and wind energy infrastructure and EV adoption. Industry estimates project solar PV module waste to jump from 100 kilotonnes (kt) in FY23 to 340 kt by 2030. Additionally, 500 kt of EV batteries are expected to reach recycling units in the coming years. Research indicates that recycling critical minerals can significantly reduce the need for virgin ores and new mines.

In a report released in July, 2023, NITI Aayog also pushed for a PLI scheme for critical mineral recycling. "Apart from non-fiscal incentives from states, a production linked incentive can also be introduced by the Government of India in line with the ACC PLI scheme given to cell manufacturers. This will not only help the domestic recyclers but also serve the cell manufacturers selected under the ACC PLI scheme," the report, co-authored with the Green Growth Equity Fund, said.

The think tank also recommended the consideration of key parameters for developing such an incentive, including the cell chemistry or minerals and metals being recovered, recovery efficiency of recycled minerals and metals, and benchmarks for domestic utilisation of recovered minerals and metals.

The need to incentivise the growth of critical mineral recycling has become all the more urgent after most critical mineral blocks offered by the Mines Ministry failed to pass the technical bids stage, which requires at least three eligible bidders. This indicates a lack of investor interest in domestic mining of critical minerals.

The new incentives will also build on the Battery Waste Management Rules (BWMR) notified in 2022 by the Central Pollution Control Board. These rules mandate that producers of batteries containing lithium, nickel, cobalt, and lead ensure environmentally sound management of waste batteries through Extended Producer Responsibility (EPR) compliance. EPR compliance, based on the polluter pays principle, holds producers accountable for managing the waste generated by their products. Producers can meet compliance by trading credits with recyclers.

SCHEME TO TARGET E-WASTE RECYCLING

THE PLI scheme will target e-waste recycling – often referred to as "urban mining" – to recover critical minerals such as lithium, copper, cobalt, graphite, chromium, and silicon. These minerals are crucial for clean energy tech like solar PV modules, wind turbines, energy storage systems, and EVs

THE PROPOSED scheme aligns with policy recommendations from NITI Aayog, the government's apex think tank, and complements the Battery Waste Management Rules , 2022, which mandate phased recycling of used EV lithium-ion batteries from 2026 onwards

- **What is Critical Mineral Recycling?**
  - Critical mineral recycling involves the extraction and reuse of essential minerals like **lithium, cobalt, and graphite** from **electronic waste (e-waste)** and spent batteries.
  - These minerals are vital components in technologies such as **solar panels, wind turbines, energy storage systems, electric vehicles (EVs), and consumer electronics.**
  - **Challenges**
    - Indian recyclers currently face challenges in extracting battery-grade minerals from e-waste, highlighting the need for capacity-building initiatives.
    - The scheme aims to address these challenges by providing incentives based on the type and value of minerals recycled, thereby encouraging innovation and technological advancements in the recycling sector.
- **How will the proposed PLI Scheme help?**
  - The proposed PLI scheme aims to foster a circular economy by reducing reliance on virgin ores and promoting sustainable practices.
  - It targets enhancing domestic supply chains for critical minerals, thereby boosting India's self-reliance in clean energy technologies and reducing environmental impacts associated with mining.

- The PLI scheme is designed to incentivize the production of recycled critical minerals through advanced recycling technologies and infrastructure investments. It seeks to encourage the recovery of high-purity minerals suitable for reuse in primary inputs.

- **What is the need?**
  - **Increasing demand:** The growing demand for critical minerals is sustaining supply to meet the anticipated boom. The IEA predicts that meeting future demand will require doubling current mineral inputs for clean energy technology by 2040.
  - **Critical Minerals forms part of multiple strategic value chains**, including
    - **Clean technologies initiatives**such as zero-emission vehicles, wind turbines, solar panels
    - **Information and communication technologies**, including semiconductor
    - **Advanced manufacturing inputs and materials** such as defence applications, permanent magnets, and ceramics
  - **Green commitments:** India's **international commitments towards reducing carbon emissions**, which require the country to urgently relook at its mineral requirements for **energy transition and net-zero commitments.** While the clean energy transition will undoubtedly require greater mining, recycling will play a role in sustaining future mineral supply.
- **Critical Minerals in India**
  - The Centre has identified '30 critical minerals', which are essential for the country's economic development and national security.
  - The **Ministry of Mines** constituted a committee (chaired by **Dr. Veena Kumari Dermal**) for the identification of critical and strategic minerals.
  - Antimony, Beryllium, Bismuth, Cobalt, Copper, Gallium, Germanium, Graphite, Hafnium, Indium, Lithium, Molybdenum, Niobium, Nickel, PGE, Phosphorous, Potash, REE, Rhenium, Silicon, Strontium, Tantalum, Tellurium, Tin, Titanium, Tungsten, Vanadium, Zirconium, Selenium and Cadmium.
  - **Import-dependent:** Ten minerals on the list are 100 per cent import-dependent. These are lithium cobalt, nickel, vanadium, niobium, germanium, rhenium, beryllium, tantalum, and strontium.

MCQ Current Affairs
3rd July, 2024

1. Through which Indian states does the Saryu River flow?

a) Punjab and Haryana
b) Uttarakhand and Uttar Pradesh
c) Gujarat and Rajasthan
d) Karnataka and Maharashtra

2. Xenophrys apatani, recently in news, is a:

a) Butterfly
b) Gecko
c) Salt Tolerant plant
d) Frog

3. Exercise MAITREE, a joint military exercise is conducted between India and:

a) Thailand
b) Nepal
c) Bhutan
d) Japan

4. Consider the following statements regarding Steel Slag:

A. It is an industrial byproduct obtained from the steel manufacturing industry.
B. It can be used successfully to treat acidic water discharges from abandoned mines.
Which of the statements given above is/are correct?
a) A only
b) B only
c) A and B
d) Neither of two

5. Consider the following statements regarding Senna spectabilis, recently seen in the news:
A. It is a medium to big tree native to the Indian subcontinent.
B. It is classified as 'Endangered' under the IUCN Red List.
Which of the statements given above is/are correct?
a) A only
b) B only
c) A and B
d) Neither of two

Answers Current Affairs
3rd July, 2024

1. b
2. d
3. a
4. c
5. d