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WEEKLY CURRENT AFFAIRS MAGAZINE

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Monthly Current Affairs Magazine

TIANJIN DECLARATION

The Shanghai Cooperation Organisation (SCO) leaders, through the Tianjin Declaration, unanimously condemned terrorism, referencing attacks in Pahalgam

Key Points from the Declaration

- Opposed unilateral sanctions and supported fairness in global governance.
- Condemned targeting civilians in conflicts, mentioning Gaza and Afghanistan.
- Supported political stability in Afghanistan and endorsed China's Belt and Road Initiative.

Summit Highlights

- PM Modi and President Putin discussed peace, stability, and cooperation, including Ukraine.
- Xi Jinping stressed fairness in global leadership and warned against Cold War mentality.
- Laos was upgraded to SCO partner status; members backed humanitarian aid and economic development.

Shanghai Cooperation Organisation (SCO)

- **Formation:** Established in 2001 in Shanghai by China, Russia, Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan (building on the earlier "Shanghai Five" group).

- **Membership:** Currently 9 members – China, Russia, India, Pakistan, Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan, and Iran (joined in 2023). Several observer states and dialogue partners also participate.

- **Headquarters:** Beijing, China.

- **Official Languages:** Chinese and Russian.

Objectives

- Promote regional peace, security, and stability.
- Combat terrorism, separatism, and extremism (the "three evils").
- Enhance economic, cultural, and connectivity cooperation.
- Encourage multipolarity and fairness in global governance.

Key Features

- **Regional Anti-Terrorist Structure (RATS):** Based in Tashkent, focuses on intelligence-sharing and counter-terrorism.
- **Annual Summits & Declarations:** Used to align on political, security, and economic issues.
- **Belt and Road Initiative (BRI):** Endorsed by SCO, though India remains opposed.
- Expanding outreach with **observer states, dialogue partners, and partner status**(e.g., Belarus in process of joining, Laos as partner).

India at SCO Trade Ministers' Meeting, Vladivostok

Key Highlights

- Reaffirmed commitment to a WTO-centered, open, fair, and inclusive multilateral trading system.
- Called for a development-centered trade agenda, including:
  - Permanent solution on public stockholding for food security.
  - Effective Special and Differential Treatment for developing nations.
- Urged restoration of a two-tier WTO dispute settlement system.
- Emphasized need for transparent export measures, warning against misuse and artificial scarcity.
- Stressed export diversification, resilient supply chains, and MSME integration for shared prosperity.

Broader Priorities

- Showcased India's Digital Public Infrastructure (UPI, ONDC) and proposed SCO collaboration on digital economy and secure digitalization.
- Advocated climate action on the principle of Common but Differentiated Responsibilities, opposing trade-linked discrimination.
- Highlighted AVGC sector (Animation, Visual Effects, Gaming & Comics) as a driver of jobs, exports, and creative industries.

Significance

- Strengthens rule-based, fair, and inclusive trade through WTO.
- Enhances regional economic cooperation, connectivity, and sustainable growth within SCO.

World Trade Organization (WTO)

- Established: 1 January 1995 (replacing GATT, 1947).
- Headquarters: Geneva, Switzerland.
- Membership: 164 members (including India).

Objectives

- Promote free, fair, and predictable international trade.
- Provide a platform for trade negotiations and settlement of disputes.
- Ensure non-discrimination through Most Favoured Nation (MFN) and National Treatment principles.
- Support developing countries through Special and Differential Treatment (S&DT).

Core Functions

- Administers WTO Agreements (on goods, services, and intellectual property – TRIPS, GATS, AoA).
- Trade Dispute Settlement: Operates a two-tier system – Panel and Appellate Body.
- Monitoring and Transparency: Oversees trade policies of members through reviews.
- Capacity Building: Technical assistance and training for developing/least developed countries.

Current Issues

- Appellate Body Crisis: Non-functioning since 2019 due to U.S. opposition to judge appointments.
- Agriculture Negotiations: Dispute over food security, subsidies, and public stockholding.
- Digital Trade: Rules on e-commerce and data flow are contested.
- Developing Country Concerns: Need for fairer S&DT provisions.

Significance

- Provides a rule-based multilateral trading system, preventing unilateralism.
- Ensures predictability, transparency, and stability in global trade.
- Key platform for addressing global challenges like supply chain resilience, climate-linked trade issues, and digital economy.

100 YEARS OF THE SELF-RESPECT MOVEMENT IN TAMIL NADU

Origins and Description

- Began in 1925 as a movement against caste and gender hierarchy.
- Led by Periyar E.V. Ramasamy, who used the Tamil weekly *Kudi Arasu* to spread radical, non-Brahmin ideas.

Political Impact

- Periyar engaged with the Justice Party, advocating militant non-Brahminism to counter Congress's caste politics.
- Offered an alternative social reform agenda, challenging upper-caste dominance.

Radical Social Reforms

- Popularized self-respect marriages, promoted women's rights (remarriage, property), and expanded public debate.

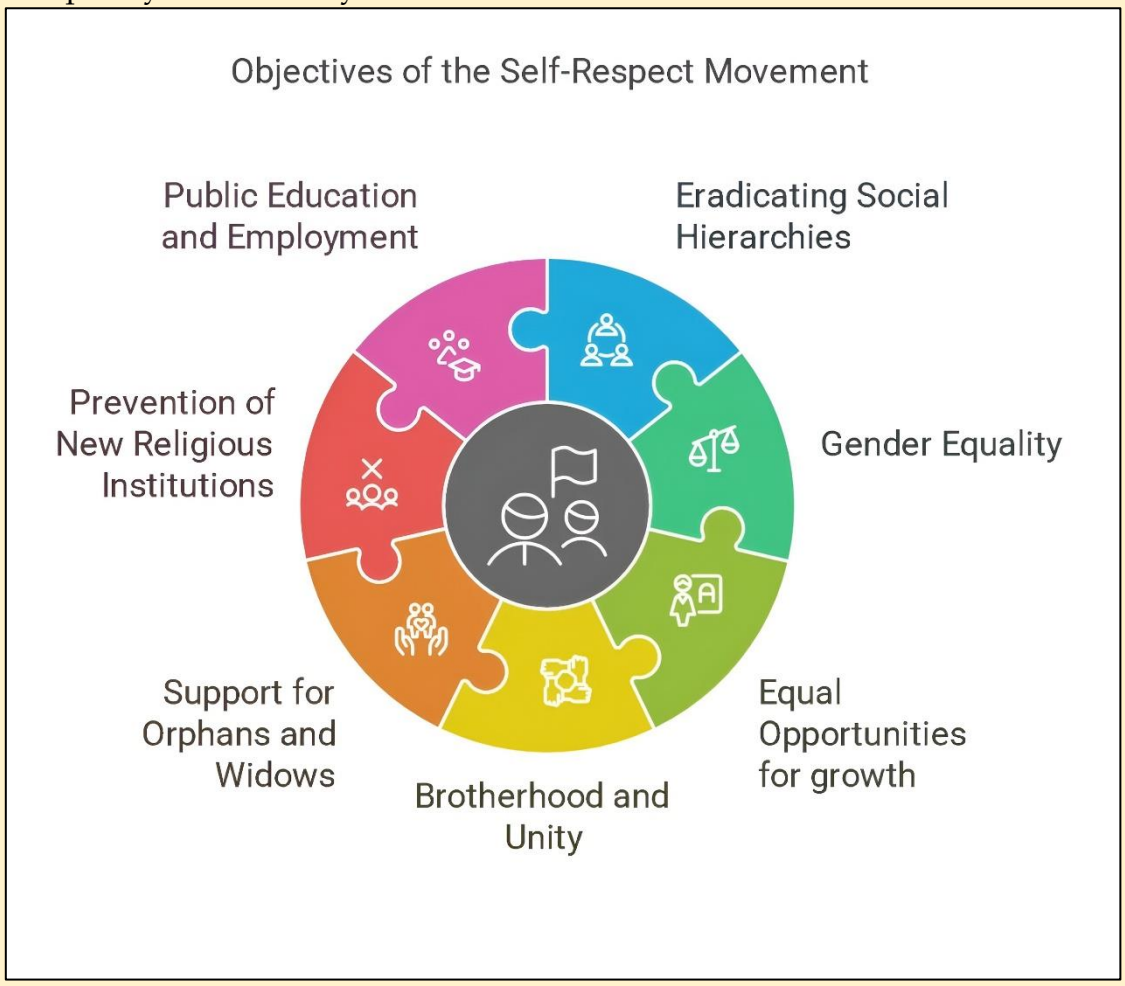
- *Kudi Arasu* articulated radical positions on caste and gender, influencing reforms in Hindu society.

Justice Party's Role

- The South Indian Liberal Federation empowered non-Brahmins and widened political participation.
- However, non-elite non-Brahmins often remained marginalized.

Legacy and Recognition

- Fostered awareness and pride among non-Brahmin masses about their rights.
- Its legacy reshaped caste dynamics, gender politics, and social reform, retaining relevance in contemporary Tamil society.



E.V. Ramasamy (Periyar)

- **Born:** 17 September 1879, Erode, Tamil Nadu
- **Known as:** *Periyar* ("The Great One")

Role in Social Reform

- Founded the Self-Respect Movement (1925) to challenge caste hierarchy, Brahminical dominance, and gender inequality.

- Advocated rationalism, atheism, and social justice, rejecting religious orthodoxy and superstition.
- Strongly opposed untouchability, hereditary caste privileges, and dominance of upper castes in politics and society.

Political Engagement

- Initially associated with the Indian National Congress, but resigned due to differences over caste discrimination.
- Later allied with the Justice Party, pushing for non-Brahmin representation in politics and education.
- Played a major role in shaping Dravidian ideology, which later influenced parties like DMK and AIADMK.

Key Reforms

- Promoted Self-Respect Marriages (without Brahmin priests, based on equality).
- Championed women's rights: widow remarriage, right to property, education, and opposition to child marriage.
- Used journalism (*Kudi Arasu* weekly) and public debates to spread rationalist and egalitarian ideas.

Legacy

- Revered as the "Father of the Dravidian Movement."
- Left a lasting impact on Tamil society, politics, and social justice discourse.
- His ideas continue to shape debates on caste, rationalism, and social reform in South India.

SAMHiTA

External Affairs Minister Dr. S. Jaishankar inaugurated the SAMHiTA Conference on South Asia's Manuscript Traditions and Mathematical Contributions

Objectives

- Digital Archive: Digitize and unify manuscripts scattered across global collections for wider access.
- Mathematical Heritage: Highlight South Asia's contributions to mathematics and related sciences.
- Global Collaboration: Partner with international institutions for preservation and knowledge exchange.

Key Highlights

- Dr. Jaishankar emphasized self-reliance in intellectual leadership and showcasing India's civilizational and mathematical heritage.
- The initiative strengthens cultural diplomacy, enhances research infrastructure, and deepens India's role in global knowledge networks.

South Asia's Manuscript Traditions and Mathematical Contributions

Manuscript Traditions in South Asia

- Diversity of Scripts and Languages:
  South Asia has one of the richest manuscript traditions in the world, spanning Sanskrit, Pali, Prakrit, Tamil, Persian, Arabic, and Tibetan among others. These manuscripts cover religion, philosophy, medicine, astronomy, mathematics, grammar, and arts.
- Materials and Mediums:
  Manuscripts were traditionally inscribed on palm leaves, birch bark, parchment, and handmade paper, often preserved in temples, monasteries, mathas, and royal libraries.
- Centers of Manuscript Culture:
  - Nalanda and Vikramshila Universities: Major repositories of Buddhist and scientific manuscripts.
  - Kerala and Tamil Nadu: Palm-leaf manuscripts in Ayurveda, astronomy, and mathematics.
  - Kashmir: Known for Shaiva and Buddhist manuscripts on birch bark.
  - Persianate Traditions: Mughal patronage encouraged preservation of texts in astronomy, medicine, and mathematics.
- Transmission and Global Spread:
  Manuscripts were carried along trade routes and through cultural exchanges to Central Asia, the Middle East, and Europe, influencing global knowledge systems.

Mathematical Contributions of South Asia

South Asia played a foundational role in global mathematical development:

- Decimal Place Value System & Zero:
  The concept of zero as a number and the place value system emerged in India (e.g., Brahmagupta, 7th century CE). This became the foundation of modern arithmetic.
- Algebra and Arithmetic:
  - Aryabhata (5th century CE): Introduced place value notation, trigonometric functions (sine, cosine).
  - Brahmagupta (7th century CE): Systematic rules for zero and negative numbers; quadratic equations.
  - Bhaskara II (12th century CE): Solutions to indeterminate equations; contributions to calculus-like concepts.
- Geometry and Trigonometry:
  - Sulbasutras (c. 800–500 BCE) contain rules for altar construction, approximations of $\sqrt{2}$, and Pythagorean triples.
  - Indian trigonometric methods later influenced Islamic and European mathematics.
- Astronomical Mathematics:
  Mathematics was closely tied to astronomy for calendar-making and planetary calculations. Works like Surya Siddhanta combined mathematics with cosmology.
- Transmission to the World:
  Indian numerals were transmitted via the Arabs ("Arabic numerals") to Europe, revolutionizing commerce and science. Indian trigonometry and algebra shaped Islamic Golden Age mathematics.

MALACCA STRAITS

Singapore has officially backed India's interest in joining joint patrols of the Malacca Straits, marking a new phase in bilateral maritime security cooperation and regional collaboration.

Key Details

- In September 2025, Prime Ministers Narendra Modi and Lawrence Wong discussed India's formal role in the Malacca Straits Patrol (MSP), currently involving Indonesia, Malaysia, Singapore, and Thailand.
- Singapore views India's participation as strengthening regional security, technology pooling, and balancing major power influence in the Indo-Pacific.

Strategic Importance

- The Malacca Strait is a vital chokepoint: nearly 40–50% of global trade and 70% of Asia's oil imports pass through it.
- For India, about 60% of sea-based trade and almost all LNG imports transit this route.
- India's Andaman & Nicobar Islands, just 600 km away, provide operational leverage for the Indian Navy.

Impact on Regional Security

- India's entry will boost anti-piracy, anti-trafficking, and intelligence operations, drawing on its naval experience in the Gulf of Aden.
- It strengthens India's Act East policy, deepens ASEAN-led security structures, and contributes to Indo-Pacific balance.

Technological Cooperation

- The partnership will advance collaboration in AI, quantum computing, unmanned vessels, and surveillance technologies.
- Joint ventures may include autonomous patrol craft and quantum-secure communications for maritime safety.

Malacca Strait

- Geography:
  The Malacca Strait is a narrow stretch of water between the Malay Peninsula (Malaysia & Singapore) and the Indonesian island of Sumatra. It connects the Andaman Sea (Indian Ocean) with the South China Sea (Pacific Ocean).
- Its narrowest point, the Phillip Channel near Singapore, is only about 2.7 km wide, making it one of the world's most significant maritime chokepoints.
- Strategic Importance:
  - Handles about 40–50% of global trade and nearly 70% of Asia's oil imports.
  - Vital for energy flows from the Middle East and Africa to East Asia.
  - For India, around 60% of its maritime trade and almost all LNG imports pass through this corridor.
- Security Concerns:
  - Vulnerable to piracy, trafficking, smuggling, and potential blockades.
  - The presence of multiple stakeholders (Indonesia, Malaysia, Singapore, and Thailand) makes cooperative security essential.
- India's Significance:
  - India's Andaman & Nicobar Islands lie just 600 km away, giving India strategic proximity.
  - Participation in the Malacca Straits Patrol (MSP) enhances India's Act East Policy and Indo-Pacific strategy.
- Global Relevance:
  Securing the Malacca Strait is critical for global energy security, freedom of navigation, and Indo-Pacific stability.

UNLAWFUL ACTIVITIES (PREVENTION) ACT (UAPA)

The Delhi High Court denied bail to several accused under UAPA in the 2020 Delhi riots case, citing that the accused had orchestrated a premeditated conspiracy and that there was enough evidence to support the charges at the bail stage.

Reasons for Bail Denial

- Court found prima facie evidence supporting charges under UAPA, which sets a low threshold for denying bail.
- Evidence included WhatsApp chats, secret meetings, and witness testimony indicating planned violence.
- Detailed scrutiny of evidence was deferred to the trial stage.

Charges and Prosecution

- Accused charged with premeditated conspiracy leading to deaths and property damage.
- Section 15 of UAPA covers acts threatening India's unity, integrity, or security.
- Witnesses confirmed planning and instigation through meetings and social media groups.

Judicial Reasoning

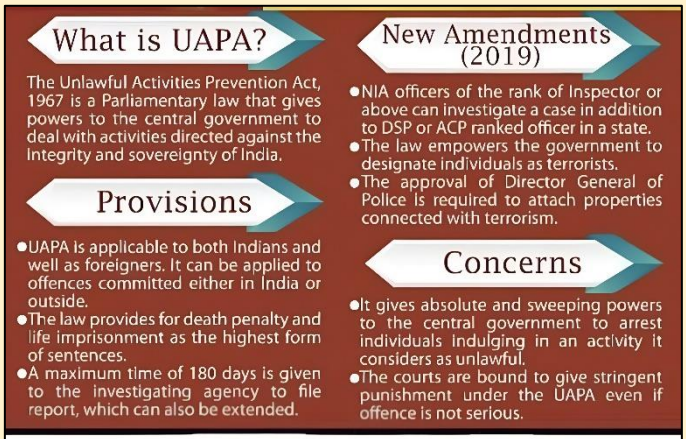
- Bail in UAPA cases is restrictive; granted only if accusations are not prima facie true.
- Bail orders for co-accused are not precedents for others, as each case is specific.

Liberty Concerns

- Accused have spent over five years in jail without trial starting.
- SC guidance allows bail if trial is unreasonably delayed, but depends on case facts.

Significance

- Highlights UAPA's stringent bail provisions and the judiciary's cautious approach in terror-related cases.



Unlawful Activities (Prevention) Act (UAPA)

Background

- Enacted in **1967** to curb unlawful activities threatening India's sovereignty and integrity.
- Strengthened multiple times, especially post-2004, 2008 (26/11 Mumbai attacks), and 2019 amendments.
- Considered India's primary **anti-terror law**.

Key Provisions

1. **Definition of Terrorist Act (Section 15):**
   - Includes acts intended to threaten India's unity, integrity, security, or strike terror in people.
2. **Terrorist Organisation (Section 35 & 36):**
   - Central Government can **designate organisations as "terrorist organisations"** and ban them.
3. **Individual Terrorist Tag (2019 Amendment):**
   - Government can designate **individuals** as terrorists (without judicial oversight).
4. **Extended Detention & Bail Restrictions (Section 43D(5)):**
   - Allows detention up to **180 days** without filing a charge sheet.
   - Bail can be denied if court believes accusations are **prima facie true**, setting a low threshold.
5. **National Investigation Agency (NIA) Powers:**
   - Empowered to investigate UAPA cases across India without state consent.
6. **Search, Seizure & Property Attachment:**
   - Government can seize property suspected to be linked with terrorism.

Contentious Issues

- **Overbreadth & Vagueness:** Broad definitions risk misuse against activists, journalists, and dissenters.
- **Bail Provisions:** Section 43D(5) makes bail extremely difficult, leading to long pre-trial incarceration.
- **Designation of Individuals:** Lack of judicial checks; government decision can stigmatize without trial.
- **Federalism Concerns:** NIA powers dilute state police jurisdiction.
- **Civil Liberties:** Extended detention and restricted bail seen as undermining personal liberty under Article 21.

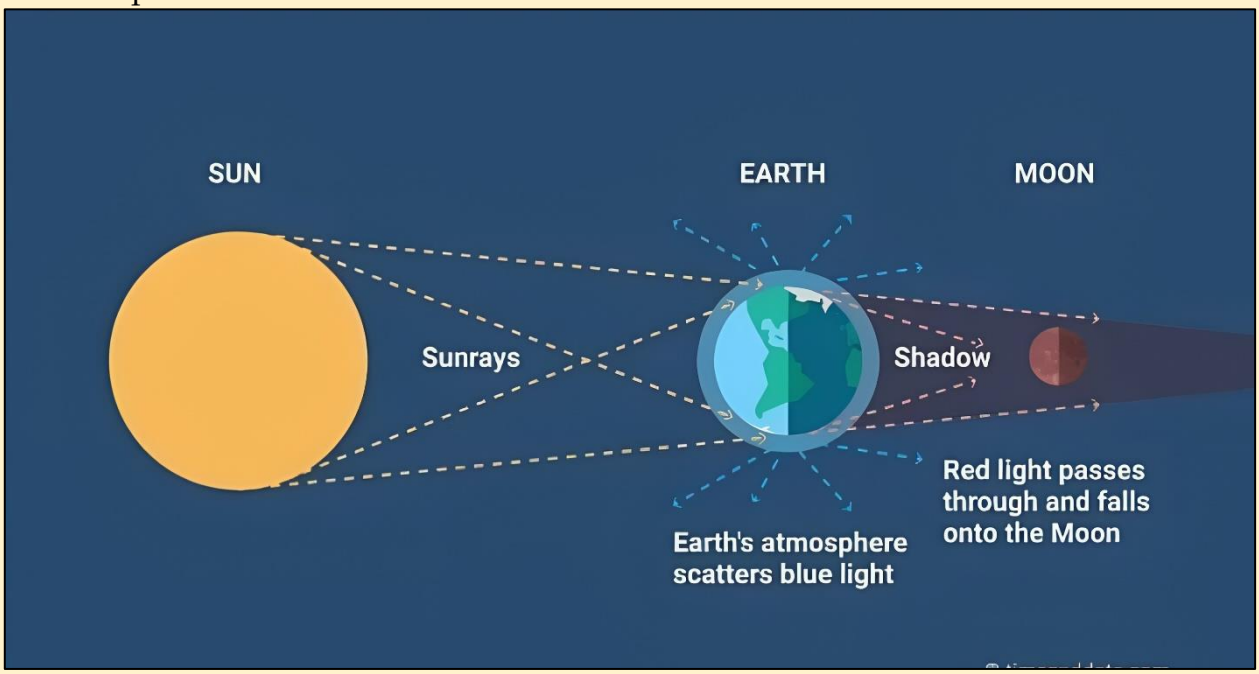
Judicial Stance

- Courts stress that UAPA must balance national security with constitutional rights.
- SC in *Union of India v. K.A. Najeeb (2021)* held that **prolonged incarceration and trial delays can justify bail** despite Section 43D(5).

BLOOD MOON

On the night of September 7–8, 2025, a spectacular total lunar eclipse, popularly called a Blood Moon, was visible across Asia.

The eclipse lasted about 82 minutes, making it one of the longest of the decade, with totality from 11:01 PM to 12:23 AM IST in India.
During the event, Earth came between the Sun and the Moon, casting a shadow that turned the Moon a striking red-orange due to Rayleigh scattering, which filters out blue light and allows red light to reach the Moon's surface.
The event attracted skywatchers worldwide, with stunning images and live streams capturing the rare celestial spectacle.



Blood Moon (Total Lunar Eclipse)

- A Blood Moon occurs during a total lunar eclipse, when the Earth comes directly between the Sun and the Moon, blocking sunlight from reaching the Moon.
- Instead of going completely dark, the Moon appears red or reddish-orange.
- This happens because of Rayleigh scattering: Earth's atmosphere scatters shorter blue wavelengths of sunlight while the longer red wavelengths bend around Earth and illuminate the Moon.
- The intensity of the red color depends on the amount of dust, pollution, or volcanic particles in Earth's atmosphere.
- Unlike a solar eclipse, a lunar eclipse (and hence a Blood Moon) is visible from anywhere on Earth where the Moon is above the horizon at the time.
- Blood Moons are rare but predictable astronomical events, often lasting longer than solar eclipses.

Partial Lunar Eclipse

- Occurs when only a part of the Moon enters Earth's umbra (central shadow).
- The rest of the Moon remains illuminated by direct sunlight.
- The Moon appears as if a dark "bite" has been taken out of it.
- More frequent than total lunar eclipses.

Total Lunar Eclipse

- Occurs when the entire Moon enters Earth's umbra.
- The Moon appears reddish-orange (Blood Moon) due to Rayleigh scattering and refraction of sunlight through Earth's atmosphere.
- Can last up to 1 hour or more, depending on Earth-Moon-Sun alignment.
- Less frequent compared to partial eclipses but more spectacular.

Key Difference:

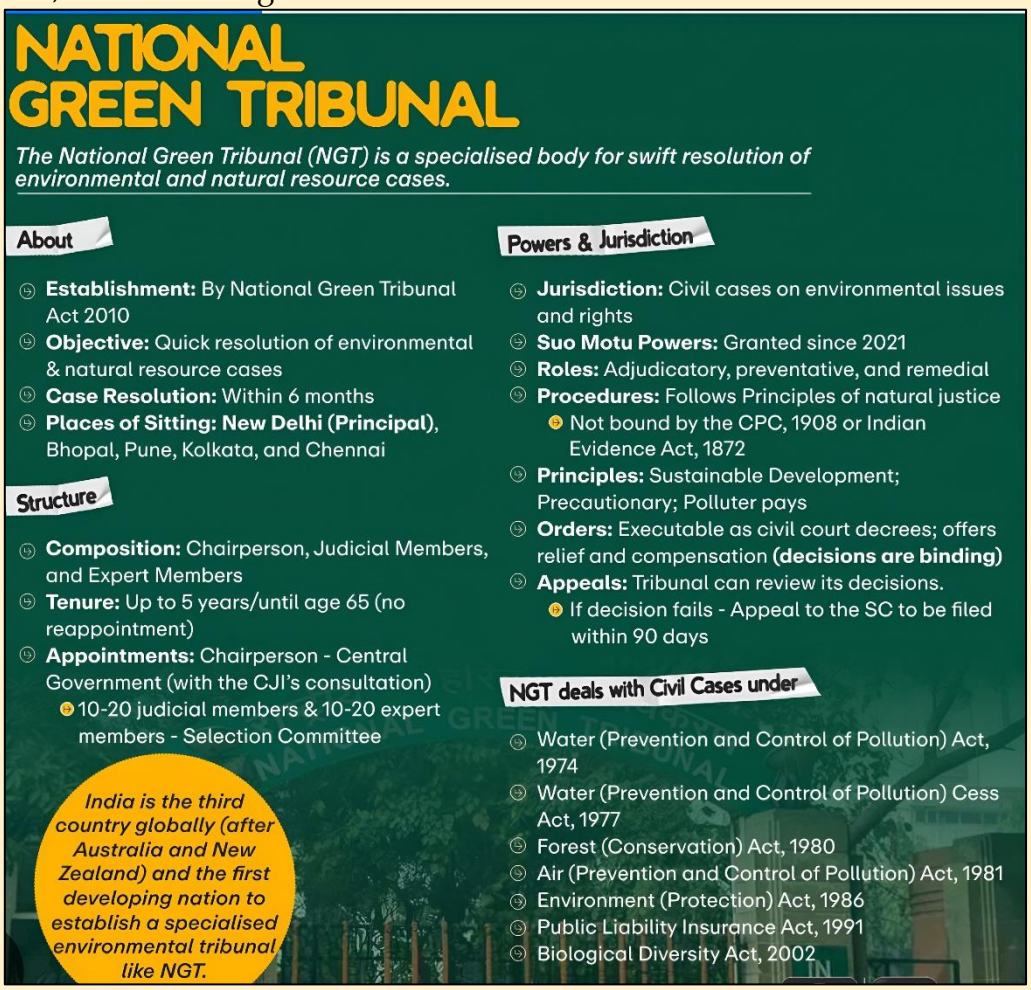
- Partial eclipse → only part of Moon darkens.
- Total eclipse → whole Moon darkens and turns red.

NATIONAL GREEN TRIBUNAL (NGT)

The National Green Tribunal (NGT) has directed the Ministry of Environment, Forests & Climate Change (MoEFCC) to review affidavits from Himachal Pradesh and Uttarakhand on declaring the Higher Himalayas as an eco-sensitive zone (ESZ).

Key Points

- Aim: Protect fragile Himalayan ecosystems from disasters and unsustainable development.
- Recommended measures: Restrict large construction projects, monitor glaciers and river flows, curb biodiversity threats, strengthen disaster response, and improve waste management.
- Context: Frequent floods, landslides, and glacial lake outburst floods are worsening with climate change.
- Next steps: States have sought more time citing ongoing crises; NGT expects detailed responses, with a hearing due in late November 2025.



National Green Tribunal (NGT)

- **Establishment:** Formed in **2010** under the *National Green Tribunal Act, 2010*.
- **Objective:** Provides speedy and specialized adjudication of cases relating to environmental protection, forest conservation, and enforcement of legal rights connected to the environment.

Key Features

1. **Jurisdiction:**
   - Handles civil cases under laws such as the Environment Protection Act (1986), Forest Conservation Act (1980), Air Act (1981), Water Act (1974), Biological Diversity Act (2002), etc.
   - Excludes Wildlife (Protection) Act, 1972 and Indian Forest Act, 1927.
2. **Composition:**
   - Chairperson (a retired Supreme Court judge or Chief Justice of a High Court).
   - Judicial Members and Expert Members (environmental experts/scientists).
3. **Powers:**
   - Same powers as a Civil Court under CPC.
   - Can grant relief, compensation, and order restoration of damaged ecology.
4. **Principles Applied:**
   - **Polluter Pays Principle.**
   - **Precautionary Principle.**
   - **Sustainable Development.**
5. **Speedy Disposal:**
   - Mandated to dispose of cases within **6 months** of filing.
6. **Benches:**
   - Principal Bench: New Delhi.
   - Regional Benches: Bhopal, Pune, Kolkata, and Chennai.

Significance

- Provides **accessible and specialized justice** in environmental matters.
- Acts as a **check on unsustainable development** projects.
- Ensures accountability of both State and private entities in ecological protection.

Challenges

- Limited jurisdiction (cannot take up wildlife/forest rights cases directly).
- Enforcement of its orders sometimes weak.
- Burden of increasing environmental disputes vs limited benches.

RIGHTS OF PERSONS WITH DISABILITIES (RPWD) ACT, 2016.

The Government of India has issued revised guidelines under the **Rights of Persons with Disabilities (RPWD) Act, 2016**.

The guidelines provide a framework for assessing disability in individuals with two copies of the sickle cell gene, or with sickle cell plus beta thalassaemia/Hb D.

However, the **exclusion of sickle cell disease (SCD) from the 4% reservation quota has** triggered criticism and demands for reform.

What is Sickle Cell Disease (SCD)?

- SCD is a genetic blood disorder caused by an abnormal form of haemoglobin (HbS).
- Red blood cells, instead of being round and flexible, take the shape of a sickle (crescent).
- This makes them sticky and fragile, leading to:
- Anaemia: Shortage of healthy red blood cells.

- Severe pain episodes (crises): Due to blocked blood flow.
- Organ damage: Heart, kidney, spleen, and brain may be affected.
- Frequent hospitalisation from childhood.
- Beyond health issues, stigma and discrimination deepen the barriers to education, employment, and social mobility.

Salient features of Rights of Persons with Disabilities (RPwD) Act, 2016

- The **Rights of Persons with Disabilities (RPwD) Act, 2016** was passed to safeguard the dignity and equality of persons with disabilities and to ensure they are protected from any form of discrimination.
- The 2016 Act expanded the scope to **21 types of disabilities**. These include conditions such as **autism spectrum disorder, cerebral palsy, muscular dystrophy, specific learning disabilities, and survivors of acid attacks**, among others.

Benefits

- Discrimination in recruitment, promotion, training, or pay on the basis of disability is not allowed.
- Persons with disabilities must be **treated equally** in the workplace.
- At least **4% of vacancies in government jobs** are reserved for candidates with benchmark disabilities (40% or more impairment).
- **Employees who acquire a disability during service** cannot be removed from their job.
- Such employees can be shifted to another suitable post without any cut in pay or benefits.

- Employers must provide necessary adjustments or assistive devices to help employees perform their duties.
- Workplaces should have accessible infrastructure like ramps, adapted furniture, supportive technology, and suitable toilets.
- Policies must be in place to prevent harassment, bullying, or discrimination related to disability.
- Persons with disabilities should have equal access to training, reskilling, and promotional opportunities.

RPWD Act, 2016 and Benchmark disability

- The RPWD Act widened the meaning of disability and gave special rights to those with **benchmark disabilities**.
- A **benchmark disability** means a person has at least **40% or more impairment**, as per Section 2(r) of the Act.
- People with benchmark disabilities can get **free school education, reservations in higher studies, benefits under government schemes, and job reservations**.
- The 40% rule leaves out many who still suffer as the percentage system is not uniform. Different doctors or medical boards may give different results for the same person.
- Because of this, many disabling conditions that affect daily life do not get officially recognised.
- **Sickle Cell Disease (SCD)** may not always look like a disability but causes severe problems.
- People with SCD face repeated episodes of **pain, weakness, anaemia, organ damage, and frequent hospital visits**, often from childhood.
- These health issues disturb schooling, reduce job chances, and shorten life expectancy.
- The problem is worse for **Adivasi and Dalit communities**, who also face **stigma and discrimination** along with the disease.

The continual reliance on biomedical scoring and exclusion of people with SCD from full protections undermines the very purpose of recognising the condition under the Act.

Issue of burden of proof

- In India, many government schemes give special benefits to people who have an official disability certificate.
- Some states like Odisha and Himachal Pradesh provide higher pension amounts for people with severe disabilities.
- Under **Section 80U of the Income Tax Act, 1961**, a person with a certified disability can get a tax deduction of ₹75,000, which goes up to ₹1.25 lakh in cases of severe disability.
- To claim these benefits, a person must get a **disability certificate**, issued by a medical authority as per Section 58 of the RPwD Act.
- The certificate is issued after evaluation by a medical board, usually led by the Chief Medical Officer.
- Confirmatory test reports must come from a government-approved or standard lab.
- Disability beyond the basic 40% benchmark is calculated through a **scoring system that** gives points for issues like pain, frequent blood transfusions, or neurological problems.
- This scoring system often ignores the **real impact of the disease**, especially when symptoms are invisible or occur only sometimes.
- As a result, people with serious challenges may not qualify for a higher score.
- The certification process itself is difficult for marginalised groups. **Adivasi and Dalit patients in rural or remote areas** face big hurdles in arranging medical tests or travelling long distances to district hospitals for evaluation.

Way forward

- **Extend job reservations** under the 4% quota to individuals with SCD and related blood disorders.
- **Reform certification** process, move beyond biomedical scoring to consider fluctuating, invisible, and social impacts.
- **Introduce decentralise certification** ensure accessibility in rural/tribal areas with mobile medical boards.
- **Adopt rights-based approach,** treat disability as a lived experience shaped by health, social exclusion, and structural barriers.
- Combat stigma within healthcare, education, and workplaces by increasing awareness.

The RPWD Act promised inclusion and dignity but continues to rely on narrow biomedical frameworks. Unless sickle cell disease is recognised as a genuine, lifelong disability with real entitlements and protections, India risks reducing inclusion to mere tokenism.

IMMIGRATION AND FOREIGNERS BILL, 2025

The Immigration and Foreigners Bill, 2025 overhauls India's regime for regulating the entry, stay, and exit of foreign nationals by consolidating four older laws into one.

Key Highlights

- Consolidation: Merges the Passport (Entry into India) Act, 1920; Registration of Foreigners Act, 1939; Foreigners Act, 1946; and Immigration (Carriers' Liability) Act, 2000.
- Unified System: Introduces a centralized, digital framework for registration, permits, reporting, and data management.
- Authority: Immigration officers get final authority over entry, exit, and admissibility, with national security grounds overriding.

Provisions

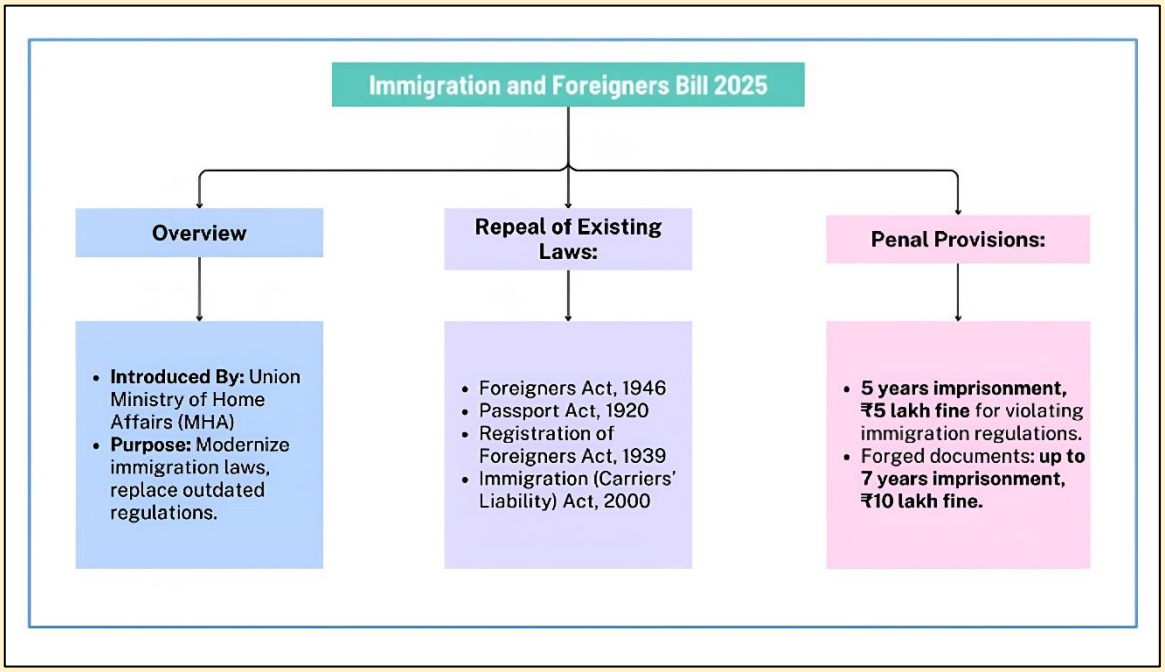
- Registration: Mandatory for foreigners at designated posts; district police and regional officers empowered.
- Accommodation Reporting: Hotels and similar establishments must submit records of foreign guests.
- Digital Permits: Required for movement into restricted/prohibited areas.

Exemptions

- Diplomats, official passport holders, Nepal and Bhutan citizens (except via third countries) exempt.
- Refugees: Sri Lankan Tamils (pre-2015) regularized; Tibetans and other registered refugees protected by special orders.

Enforcement

- Digital Infrastructure: Online portals and mobile apps for monitoring.
- Graduated Penalties: Differential fines based on seriousness (e.g., minor overstay penalties).
- Humanitarian Exemptions: Foreign military or events allowed by notification.



Fundamental Rights for Foreigners in India

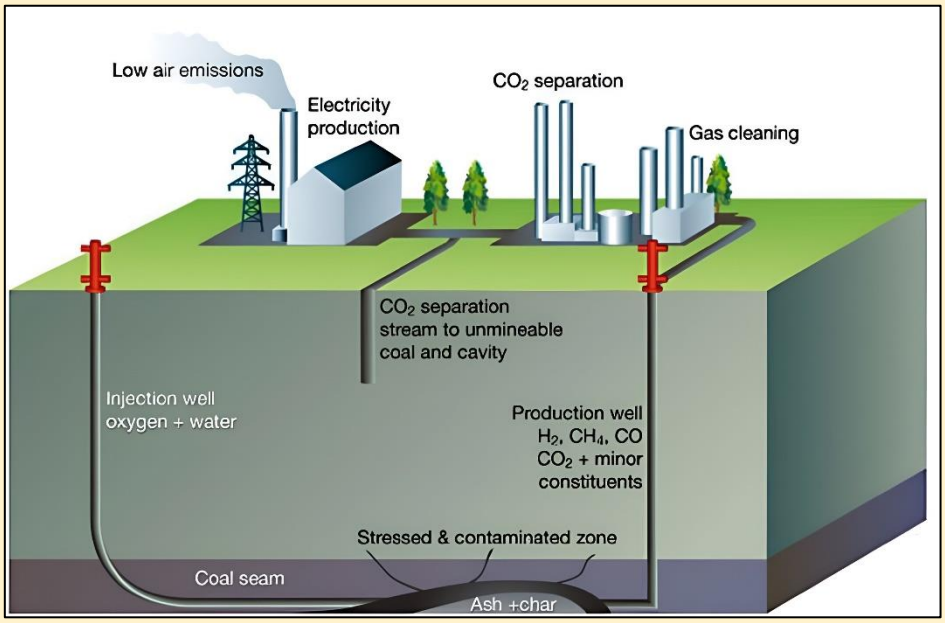
- **General Principle:**
  Fundamental Rights in Part III of the Constitution are available to both citizens and foreigners, except where expressly restricted to citizens only.
- **Rights Available to Foreigners:**
  - **Article 14:** Right to equality before law and equal protection of laws.
  - **Article 20:** Protection in respect of conviction for offences.
  - **Article 21:** Right to life and personal liberty.
  - **Article 22:** Protection in cases of arrest and detention (with certain limits).
  - **Article 23 & 24:** Prohibition of trafficking, forced labour, and child labour.
  - **Article 25–28:** Freedom of religion (subject to public order, morality, health).
  - **Article 32:** Right to constitutional remedies for enforcement of rights.

- **Rights Not Available to Foreigners (Citizens Only):**
  - **Article 15 & 16:** Prohibition of discrimination and equality of opportunity in public employment.
  - **Article 19:** Six freedoms (speech, movement, residence, profession, etc.).
  - **Article 29 & 30:** Cultural and educational rights of minorities.
- **Special Note:**
  - Enemy aliens may have these rights further restricted during emergencies.
  - Foreigners are bound by laws relating to entry, stay, and exit under statutes like the Foreigners Act, 1946 and the new Immigration and Foreigners Bill, 2025.

NITI AAYOG WORKSHOP ON COAL GASIFICATION

- Objective: Workshop in New Delhi on "Coal Gasification Technology for Indian High Ash Content Coal" aimed at advancing the National Coal Gasification Mission, Make in India, and Atmanirbhar Bharat.
- Focus: Addressing challenges of gasifying Indian coal with 25–45% ash content; experts highlighted circulating fluidized bed gasification as most suitable.

- Policy Support: Ministry of Coal announced ₹8,500 crore Viability Gap Funding for public and private projects, with Letters of Award for selected firms.
- Indigenous Technology: IIT Delhi, BHEL, CIMFR, and others showcased successful pilot projects proving feasibility of gasification using domestic tech.
- Strategic Significance: Coal gasification positioned as vital for energy security, cleaner coal utilization, and reducing import dependence; next steps include CCUS integration and scaling pilot projects for commercial deployment.



Coal Gasification

- Definition: Coal gasification is a process that converts coal into synthesis gas (syngas), a mixture of carbon monoxide (CO), hydrogen (H_2), carbon dioxide (CO_2), and methane (CH_4).
- Process: Coal reacts with controlled amounts of oxygen, steam, or air at high temperature and pressure, without complete combustion.
- Uses of Syngas:
  - Power generation (Integrated Gasification Combined Cycle – IGCC)
  - Production of methanol, ammonia, urea, and synthetic natural gas (SNG)
  - Hydrogen production and as feedstock for petrochemicals
- Advantages:
  - Cleaner utilization of coal with reduced SOx, NOx, and particulate emissions compared to direct burning
  - Enables Carbon Capture, Utilization, and Storage (CCUS)
  - Reduces dependence on imported oil and natural gas.
- Challenges in India:
  - High ash content in Indian coal (25–45%) makes gasification technologically demanding
  - High costs of setup and operation
  - Need for robust infrastructure and indigenous R&D.
- Policy Context:
  - India aims for 100 MT of coal gasification by 2030
  - National Coal Gasification Mission supports projects through viability gap funding and public-private partnerships

HYDROGEN TRAIN

Indian Railways has recently tested its first hydrogen-powered coach, marking a significant step towards the deployment of **Hydrogen Fuel Cell (HFC) technology** in India's vast railway network.

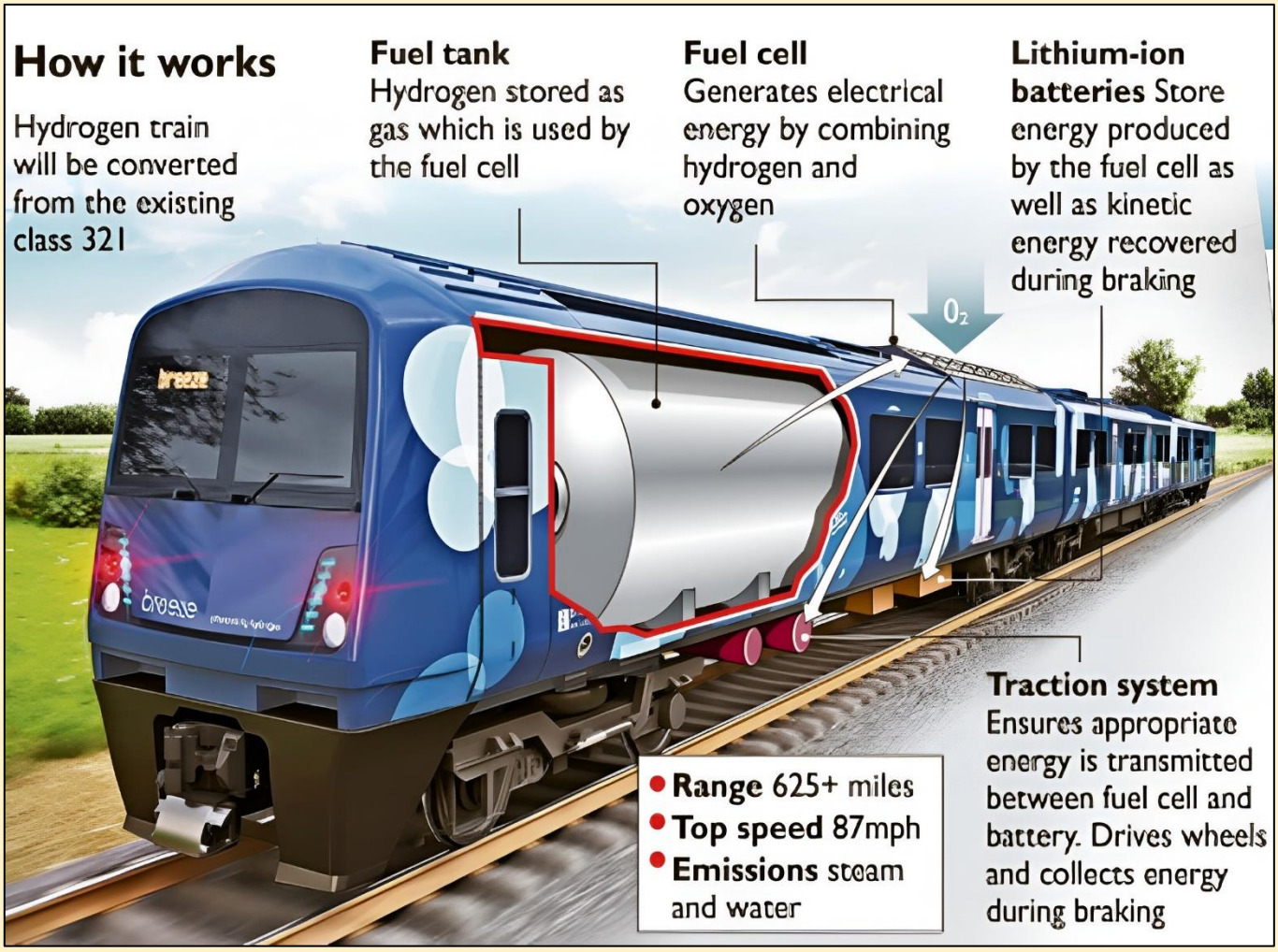
Hydrogen-powered trains, or **hydrail**, are emerging as a promising zero-emission alternative to diesel-electric locomotives.

What are Hydrogen Trains?

- Hydrogen trains are electric trains with an onboard power source, unlike conventional electric trains that are powered via overhead wires.

- They use HFC (Hydrogen Fuel Cell) technology, which generates energy through the electrochemical reaction of compressed hydrogen with atmospheric oxygen, emitting water vapour as the sole byproduct making it a zero-emission mechanism.

- The electricity produced by the fuel cell is stored in batteries, which provide additional power during acceleration and climbing inclines.
- Hydrogen trains also employ regenerative braking technology, which captures the kinetic energy (motion energy) generated during braking and converts it into electricity to recharge onboard batteries.



Hydrogen Fuel Cell vs Electric Trains

- Hydrogen trains work by first using electricity to produce hydrogen (through electrolysis), and then converting that hydrogen back into electricity inside the train to run it. Because of this double conversion process, some energy is lost along the way.
- Electric trains, on the other hand, draw electricity directly from overhead wires. This makes them more energy-efficient, especially when the power comes from renewable sources like solar or wind.
- This means that, over their full life cycle, electric trains are generally more efficient than hydrogen trains.

Green Hydrogen vs Grey Hydrogen

- Green Hydrogen: Made using renewable energy (like solar or wind) to split water into hydrogen and oxygen. This process does not release harmful gases, so the trains powered by it can truly be called zero-emission.
- Grey Hydrogen: Produced from fossil fuels (like coal or natural gas). This process releases carbon dioxide (CO_2), which reduces the environmental benefits of hydrogen trains.
- For hydrogen trains to actually fight climate change, India needs to shift from grey hydrogen to green hydrogen at a large scale. Only then can hydrail become a genuinely clean and climate-friendly option.

Advantages of Hydrail

- Eliminates smoke emissions from fuel combustion, reducing noise and air pollution.
- Operates on both electrified and non-electrified routes, ensuring greater flexibility.
- Particularly useful for routes where overhead electrification is unfeasible or prone to disruption.
- Can be refuelled in 20–25 minutes, faster than battery-electric train recharging.
- Supports India's net-zero target by 2070; Indian Railways already reduced fuel use by 136 crore litres (2018–19 to 2023–24).
- Though initial investments are high, cost-effective on non-electrified routes by avoiding overhead electrification costs.
- Reduces dependence on imported diesel, strengthening energy security and improving balance of payments.

Challenges

- Hydrail has a substantially high initial cost of production compared to both electric and diesel trains.
- It requires the development of an extensive system for hydrogen production, storage and distribution – an infrastructure that is largely absent in India today.
- The massive refueling stations and machinery needed to support the substantial fleet of hydrogen trains present another logistical and financial challenge.
- The highly flammable nature of hydrogen requires adherence to strict safety standards from production to storage and refuelling, necessitating further investment in safety infrastructure and training for railway personnel.
- Currently, most hydrogen in India is derived from fossil fuels → undermines decarbonisation goals.

Way forward

- Leverage India's growing renewable energy capacity to scale up green hydrogen production and reduce costs.

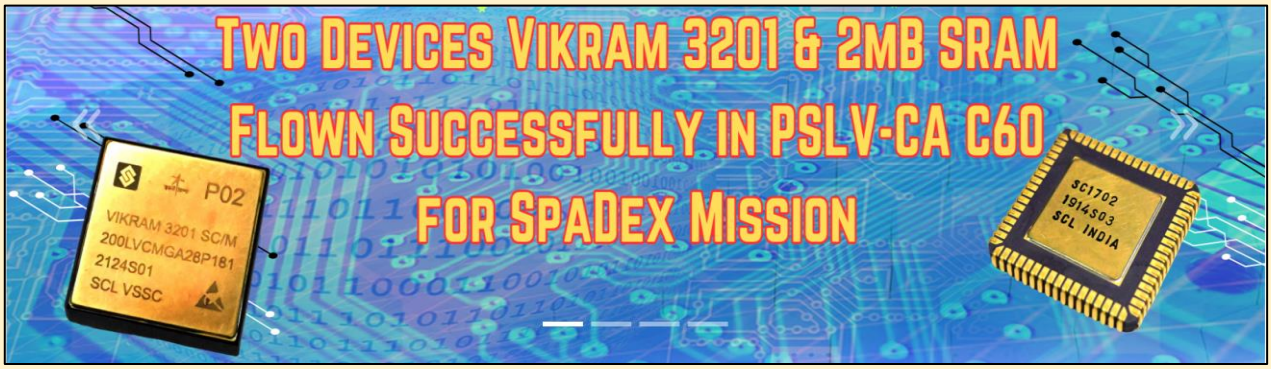
- Develop a decentralised hydrogen infrastructure focusing on storage and refuelling, inspired by the Hydrogen Highways model under NGHM.
- Invest heavily in research and development to improve hydrogen fuel cell efficiency, safety standards, and cost competitiveness.
- Ensure long-term policy support with clear roadmaps, incentives, and public–private partnerships to sustain momentum.
- Strategically deploy hydrogen trains on non-electrified, remote, and hilly routes where they have maximum advantage.

Hydrogen trains mark a significant milestone in India's pursuit of a **sustainable and decarbonised transport system**. With the right mix of renewable energy integration, infrastructure development, and supportive policies, India can position itself as a **global leader in green hydrogen innovation**.

VIKRAM 3201

Prime Minister Narendra Modi received the first Made in India Vikram 32-bit chip at Semicon India 2025, marking a milestone in the country's semiconductor industry.

- The Vikram 32-bit Processor, an upgraded version of the earlier 16-bit VIKRAM1601 microprocessor, was developed by ISRO's Vikram Sarabhai Space Centre and the Semiconductor Laboratory, Chandigarh. It has been used in ISRO's launch vehicles since 2009 for space flight and avionics.
- Union Minister Ashwini Vaishnaw presented the chip to PM Modi, along with 31 prototype chips developed by IITs and NITs.



- India currently has five semiconductor units under construction, one pilot line completed, and two more units set to begin production soon.
- This achievement strengthens India's position as an emerging semiconductor hub, boosting global confidence in its technology sector.

The Vikram 32-bit chip is India's first indigenously developed 32-bit microprocessor for space applications. It is an advanced version of the earlier VIKRAM1601 (16-bit) processor and has been developed by ISRO's Vikram Sarabhai Space Centre in collaboration with the Semiconductor Laboratory, Chandigarh.

The chip is specifically designed for space flight and avionics systems in ISRO's launch vehicles and has been in operational use since 2009.

Product Description	Project
Vikram 3201 & 2mB SRAM	PSLV-CA C60
Vikram 1601 PE01	GSLV F-14/INSAT-3DS
ADC	Aditya L1 Mission
Vikram 1601 PE01	PSLV C57 Vehicle for Aditya L1 Mission
CMOS Camera Configurator	Lander Module of Chandrayaan 3 Mission
Vikram 1601 PE01	LVM3 M4 Vehicle for Chandrayaan 3 Mission

Its development marks a major step in India's semiconductor self-reliance, showcasing the country's ability to design and manufacture high-end processors for critical sectors like space technology. The presentation of this chip at Semicon India 2025 highlights India's growing semiconductor ecosystem and its strategic push to become a global manufacturing hub.

BLUE DRAGONS

Several beaches in Spain were closed after the arrival of blue dragons (Glaucus atlanticus)

Several beaches in Spain were closed after the arrival of blue dragons (Glaucus atlanticus), small but venomous sea slugs capable of delivering extremely painful stings.

These creatures float upside down on the ocean surface, feeding on venomous jellyfish and incorporating their toxins for defense. Rarely seen in the Mediterranean, their sudden presence surprised scientists and locals. Stings can cause pain, swelling, nausea, and vomiting, though not usually fatal. Their appearance is linked to shifting water currents and marine anomalies, possibly driven by climate change.

Blue Dragon (Glaucus atlanticus)

- A small but strikingly blue sea slug (nudibranch) found in warm ocean waters.
- Floats upside down on the water surface using a gas-filled sac in its stomach.
- Feeds mainly on venomous organisms like Portuguese man o' war and jellyfish, storing their stinging cells (nematocysts) in its own tissues.
- This ability makes its sting extremely painful, causing swelling, nausea, and vomiting, though not usually fatal.
- Rarely seen in the Mediterranean; presence there is linked to shifting water currents and climate change.
- Considered an indicator of marine ecological anomalies.

RAMON MAGSAYSAY AWARD

Educate Girls, an Indian non-profit dedicated to enrolling unprivileged and out-of-school girls, has won the 2025 Ramon Magsaysay Award.
Founded in Rajasthan, the organization works in rural and remote areas to address gender injustice in education, ensuring girls remain in school until they secure credentials for higher studies or employment.
This is the first time an Indian organization has received the award for advancing girls' education, highlighting its community-driven model. The other 2025 winners are Shaahina Ali of the Maldives and Flaviano Antonio L. Villanueva of the Philippines.

Ramon Magsaysay Award

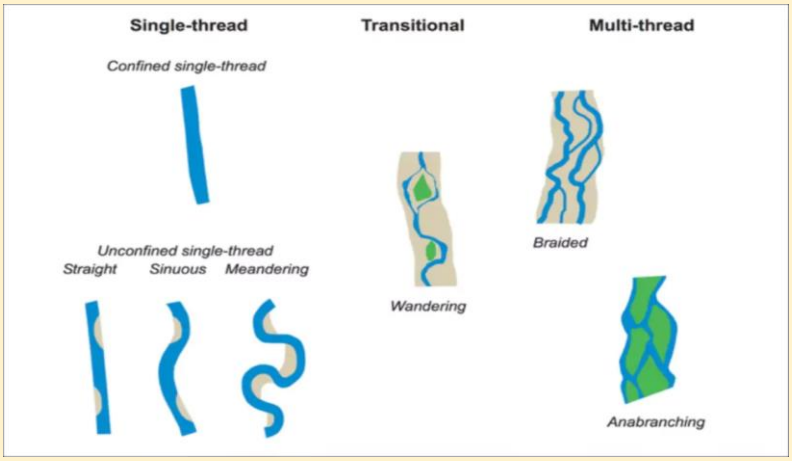
- **Established**: 1957, in memory of Ramon Magsaysay, the 7th President of the Philippines, known for integrity and leadership.
- **Presented by**: Ramon Magsaysay Award Foundation (RMAF), Manila, Philippines.
- **Objective**: To honor individuals or organizations in Asia who demonstrate selfless service, transformative leadership, and commitment to the common good.
- **Categories (originally)**: Government Service, Public Service, Community Leadership, Journalism/Literature/Creative Communication Arts, Peace and International Understanding, Emergent Leadership.
- **Prestige**: Often called the "Nobel Prize of Asia."

MULTI THREADED RIVERS

Geographers at the University of California Santa Barbara have uncovered why some rivers split into multiple channels (multi-threaded) while others remain single-threaded.

Physical Mechanism

- **Single-thread rivers** maintain equilibrium between bank erosion and bar accretion—what erodes from one bank matches what is deposited on the opposite side, keeping the river stable.
- **Multi-threaded rivers** erode banks more quickly than they deposit material, resulting in channel widening and eventual splitting due to this persistent imbalance.



Broader Implications

- The distinction between river types affects flood risks, erosion hazards, and ecosystem services; understanding these patterns is increasingly important as extreme weather events become more common.
- Research showed many rivers historically shifted from multi-threaded to single-channel forms after human intervention, such as damming and sand mining, underscoring the impact people have on river morphology.

Technical Approach

- Scientists mapped river bank positions and water flows using thousands of satellite images, measuring erosion and gravel/sediment deposition to reveal cycles of instability behind channel splitting.
- This work highlights that river channel form is shaped not by static equilibrium but by repeated instability, informing future river management and flood prediction models.

Meandering

- **Definition**: Meanders are the sinuous, snake-like bends in a river channel that develop in its middle and lower courses due to lateral erosion and deposition.

- **Formation Process**:
  - On the outer bank, fast-flowing water causes erosion (river cliff).
  - On the inner bank, slower water leads to deposition (point bar).
  - This continuous process accentuates the bends.

- **Characteristics**:
  - Develops in rivers with gentle gradient, large volume of water, and fine sediments.
  - Migration of meanders over time may lead to the formation of oxbow lakes when a bend gets cut off.
- **Significance**:
  - Influences floodplain development.
  - Plays a role in shaping alluvial landscapes.
  - Important for ecosystems and agriculture due to fertile deposits.

Difference between Multi-threaded Rivers and Meandering Rivers

Feature	Multi-threaded Rivers	Meandering Rivers
Definition	A river that splits into two or more interconnected channels separated by bars or islands.	A river with a single channel that develops sinuous, snake-like bends.
Cause/Mechanism	Caused when bank erosion > deposition → channels widen and split into multiple threads.	Caused by lateral erosion and deposition balance → bends form due to helicoidal flow.
Appearance	Network-like, with several active water channels (braided/multi-thread pattern).	Winding or serpentine single channel with distinct loops.
Sediment Load	Usually associated with high sediment load (gravel, sand) and variable water flow.	Occurs in rivers with fine sediments (silt, clay) and steady flow.
Gradient	Typically, steeper gradients, unstable beds.	Typically, gentle gradients, low slope areas.
Examples	Brahmaputra in Assam (braided, multi-threaded).	Ganga in Bihar–UP plains, Mississippi River (USA).
Landforms Produced	Mid-channel bars, islands, multiple shifting channels.	Point bars, river cliffs, oxbow lakes, floodplains.

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