

Supreme Court strikes down some provisions of the Tribunals Reforms Act 2021

SC struck down some provisions of the **Tribunals Reforms Act, 2021**, because they were reproduced from the **Tribunals Reforms Ordinance 2021** which was declared unconstitutional (Madras Bar Association case).

- The provisions are mainly related to the appointment, tenure, and service conditions of members of various tribunals.
- These principles violated the principles of **separation of powers** and **judicial independence**.
 - ⊗ The SC emphasized that since the **executive is often a litigating party before tribunals**, it cannot be allowed to play a dominant role in appointing their members.

Key highlights of the Judgement

- **Key Provisions which have been struck down:**
 - ⊗ **Minimum Age of 50:** Invalidated as **arbitrary** and **violates Article 14** for excluding younger qualified professionals.
 - ⊗ **Four-Year Tenure of chairpersons and members:** Reinstated the 5-year tenure rule to ensure security of service.
- **Reiterated** its earlier direction to the Centre to set up a **National Tribunals Commission (within four months)**
 - ⊗ The Commission was supposed to act as an independent body to supervise the appointments and functioning of Tribunals.
 - ⊗ Also, it will take care of the administrative and infrastructural needs of the Tribunals.

About Tribunals

- Tribunals were set up to ensure specialised, efficient adjudication and speedy resolution of specific categories of cases.
- **Part XIV-A** was incorporated into the Constitution through the **Forty-Second Amendment Act, 1976**.
- Under Article 323-A, **Parliament** is empowered to **establish administrative tribunals** for service-related matters, while **Article 323-B enables** the appropriate legislature to constitute tribunals for other enumerated subjects.

India launches first indigenous CRISPR based gene therapy for Sickle Cell Disease

The Gene Therapy, named **BIRSA 101** is dedicated to **Bhagwan Birsa Munda**, a great tribal freedom fighter.

- It is developed by **CSIR–Institute of Genomics and Integrative Biology (IGIB)**.

About Gene Therapy

- **Gene therapy** is a technique that **uses a gene(s) to treat, prevent or cure** a disease or medical disorder.
- **Working Mechanism:** Add new copies of a gene that is broken, or replace a defective or missing gene in a patient's cells with a healthy version (therapeutic gene) of that gene.

About CRISPR

- CRISPR stands for **Clustered Regularly Interspaced Short Palindromic Repeats**.
- It is a **genome-editing tool** that enables scientists to cut and modify DNA sequences precisely.
- It involves two key molecules:
 - ⊗ **Guide RNA:** Designed to **find and bind** to specific parts of the target genome.
 - ⊗ **Cas9 (CRISPR-associated protein 9):** It acts as **molecular scissors** that can cut two strands of DNA.

About Sickle-cell disease (SCD)

- SCD is a **genetic disorder** that **affects haemoglobin**, the molecule in red blood cells responsible for carrying oxygen.
- The disease causes **red blood cells to become rigid and sickle-shaped**, leading to blockages in blood flow.
- It particularly affects **India's tribal population**. (1 in 86 births among STs have SCD).

Related News

enFnCas9

- An agreement was exchanged between CSIR-IGIB and the Serum Institute of India Pvt. Ltd., to translate enFnCas9 into scalable, affordable therapies for genetic disorders.
- **enFnCas9 (Francisella novicida Cas9 (FnCas9) protein)** is an engineered **high-fidelity CRISPR-Cas9 platform**, developed by IGIB.

ISRO Conducted the Boot-strap mode start test on CE20 Cryogenic Engine under vacuum conditions

This is the **first time** that boot-strap mode starting of a **gas-generator cycle cryogenic engine** is being done without any auxiliary start-up system enhancing the restart capability and mission flexibility of future **LVM3 flights**.

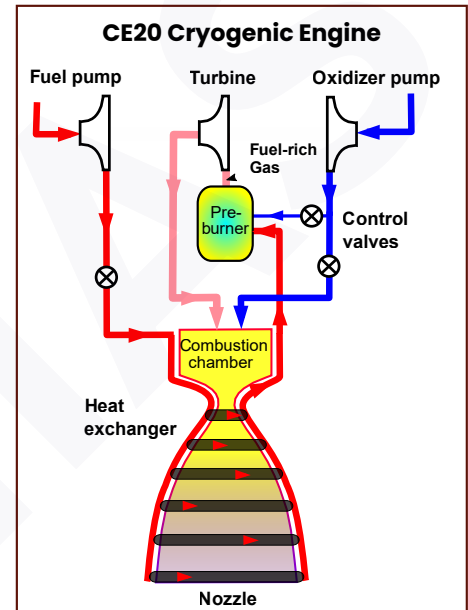
- Currently, it required an additional start-up gas bottle and associated systems, leading to a reduction in vehicle payload capability.

About Cryogenic Engines

- **Meaning:** Last stage of space launch vehicles which makes use of Cryogenics.
 - ⊕ **Cryogenics** involves the study of production and behaviour of materials at extremely low temperatures (below -150 degree C).
- **Propellants Used:** Liquid Hydrogen and liquid Oxygen.
- **Significance:** More efficient and provides more thrust for every kilogram of propellant burned.
 - ⊕ Earth storable liquid and solid propellants used in liquid and solid stages are less efficient and **gives small payload advantage**.
- **CE20:** India's largest cryogenic engine developed by **Liquid Propulsion Systems Centre, Valiamala, Kerala**.
 - ⊕ **CE20 Cryogenic Engine** powering the LVM3 upper stage, has been qualified for Gaganyaan missions.

About LVM3

- **New heavy lift launch vehicle** of ISRO for achieving a **4000 kg** spacecraft launching capability to GTO (Geosynchronous Transfer Orbit).
- **Three Stages Involved:**
 - ⊕ **Two solid propellant S200 strap-ons.**
 - ⊕ **The liquid L110 stage.**
 - **Largest liquid Stage** realized by ISRO.
 - **Core Stage of GSLV-Mk III** which uses two high thrust **Vikas engines**.
 - Recently, Godrej Enterprises delivered the first human-rated L110 stage Vikas engine for Gaganyaan project to ISRO.
 - ⊕ **C25 cryogenic stage:** Powered by CE-20 Engines.



Supreme Court (SC) Directed Centre to frame a Uniform National Policy for Organ Transplantation

Directions came as **lack of consolidated national database** for donors and recipients was slowing down the process across states.

- **Organ transplantation** is a **surgical procedure** where a failing/damaged organ is replaced with a healthy organ from a donor.

Key SC Directives

- **Frame a Uniform National Policy:** With a **model allocation criteria** mitigating issues of gender and caste bias and ending state wise discrepancies.
- **State Bodies:** Noting that states like Manipur, Nagaland, Andaman and Nicobar, and Lakshadweep lack a **State Organ and Tissue Transplant Organisation (SOTO)**, SC directed Centre to constitute these bodies under **National Organ Transplantation Programme** after state's consultation.
- **Live Donors:** Evolve guidelines for welfare of live donors, ensuring post-donation care and preventing their commercialisation and exploitation.
- **Amendments in Death Registration forms:** To be done in consultation with **National Organ and Tissue Transplant Organisation (NOTTO)** to specify whether an option to donate organs was given to the families of the deceased.

Organ Transplants in India

- **Legal Framework:** **Transplantation of Human Organs and Tissues Act 1994** (amended in 2011).
- **NOTTO:** National level organization under **Ministry of Health and Family Welfare**, dealing with **coordination and networking** for procurement and distribution of Organs and Tissues, etc.
- **National Organ Transplant Program (NOTP) Scheme:** Organize an efficient mechanism for organ and tissue procurement/retrieval especially from deceased donors.

The Global Methane Status Report 2025

Produced by **UN Environment Programme (UNEP)** and **Climate and Clean Air Coalition (CCAC)**, the report highlights progress made since the launch of **Global Methane Pledge**.

Key Highlights of the Report

- **Methane's atmospheric Concentrations:** More than **doubled** since pre-industrial times reaching approximately **352 million tonnes (Mt) per year in 2020** and is expected to rise further by 5% by 2030.
- **Impact of Rising Global Emissions:** Contribute to **24,000 additional premature deaths** and **2.5 Mt of crop losses** annually by 2030 relative to 2020.
- **Case of India:** India is the **world's third-largest methane emitter** (primarily driven by Stubble burning) after China and the United States, producing around 31 million tonnes a year.

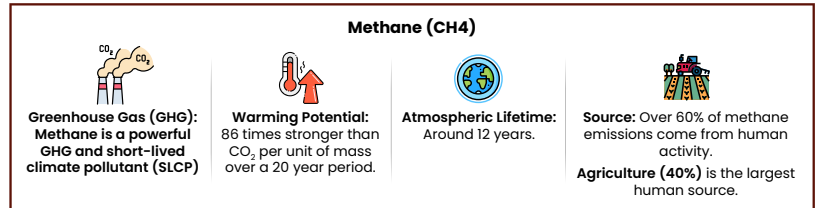
Major Initiatives taken to tackle Methane Pollution

Global

- **Global Methane Pledge (GMP):** Voluntary framework to reduce methane emissions by 30% from 2020 levels by 2030. (Not signed by India)
 - ⊖ Launched on the sidelines of **COP26 (Glasgow)** in 2021 by **Climate and Clean Air Coalition (CCAC)**.
- **International Methane Emissions Observatory (IMEO):** Led by **UNEP**.

India

- **National Mission on Sustainable Agriculture (NMSA)**
- **Technologies for Mitigation of Methane Pollution from Rice:** **System for Rice Intensification; Direct Seeded Rice** (does not maintain standing water while transplanting paddy); **Crop Diversification Programme**, etc.



Also In News



Indira Gandhi Prize

Ex.president of Chile Michelle Bachelet, was conferred with the **Indira Gandhi Peace Prize 2024**.

About Indira Gandhi Peace Prize

- The **Indira Gandhi Prize for Peace, Disarmament and Development** is awarded **annually**.
 - ⊖ Instituted by the Indira Gandhi Memorial Trust.
- It is awarded to a person or organization without any distinction of nationality, race or religion, in recognition of creative efforts towards: Promoting racial equality, and goodwill and harmony among nations, etc.



World Urbanisation Prospects 2025 Report

The report was released by the **United Nations Department of Economic and Social Affairs (UN DESA)**.

Key Highlights

- The cities are now home to **45 % of the global population (approx. 8.2 billion)**.
- The number of **megacities** quadrupled from eight in 1975 to 33 in 2025.
 - ⊖ A megacity has population of over ten million people
- **Jakarta** (Indonesia) is now the world's most populous city, followed by Dhaka (Bangladesh), Tokyo (Japan) and New Delhi.
- **India related Findings:**
 - ⊖ India has **44 per cent population** living in towns in India.
 - ⊖ India, along with six other countries, will add **more than 500 million city** residents between 2025 and 2050.



Goldilocks Environment

Morgan Stanley in 2026 **India Economics Outlook**, projected a "**Goldilocks Environment**" for India with real GDP growth of 6.8% in FY26.

About Goldilocks Environment

- It refers to an **ideal situation** where there is **steady growth**.
- The economic growth is **neither too high to trigger inflation** and **nor too low for a slowdown**.
- Hence, in a **goldilocks scenario**, the economy is **not expanding by a huge margin with inflation** or **shrinking into recession**.
- The situation offers a good chance of **stable policymaking** and achieving price stability.



Water Budgeting

NITI Aayog releases Report on **Water Budgeting for Aspiration Blocks**.

About Water Budgeting

- It provides a comprehensive view of **how much water is available from different sources**, how it is utilised, and where shortages or **surpluses might arise**.
- It helps identify the **demand–supply gap** and supports **water security** and **integrated water resources management (IWRM)**.
 - ⊖ It is one of the key activities under the **Atal Bhujal Yojana**.



Humpback Dolphins

A Study was conducted to **understand behavioural mechanisms** observed between wild dolphins including Humpback dolphins and traditional fishers in Ashtamudi Lake, Kerala.

About Humpback Dolphins

- **Geographical Distribution:** Relatively **shallow nearshore waters** in most of the coastlines in Australia, Africa and Asia.
- Two **genetic variations** along Indian coastline:
 - ⊕ **Indian Ocean humpback dolphin** (*Sousa plumbea*; IUCN: Endangered)
 - ⊕ **Indo-Pacific humpback dolphin** (*Sousa chinensis*; IUCN: Vulnerable).

River Dolphins In India

- **Gangetic River Dolphins (IUCN: Endangered):** Freshwater species found in Ganga-Brahmaputra-Meghna and Karnaphuli-Sangu river systems.
- **Indus River dolphin (IUCN: Endangered):** Indus River system in Pakistan and small population in Beas River Punjab.



Kodaikanal Solar Observatory

Researchers from the **Aryabhata Research Institute of Observational Sciences (ARIES)** tapped the century old data from the **Kodaikanal Solar Observatory** to reconstruct the Sun's past polar magnetic behaviour.

About Kodaikanal Solar Observatory

- **Operated by:** Indian Institute of Astrophysics, an autonomous institute of Department of Science and Technology (DST).
- **Location:** Palani Range of hills in Southern India.
- **Establishment:** 1899.
- **Telescopes :** WARM (White light Active Region Monitor), H - Alpha, Twin Telescope.
- Known for the discovery of **Evershed Effect** in 1909.
 - ⊕ It is **nearly horizontal outflow** of material seen in the **penumbrae** of sunspots in the photospheric layer.

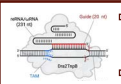


Himalayan Black Bear (*Ursus thibetanus*)

Experts point to climate change as a likely factor for Himalayan Black Bear attacks in Uttarakhand.

About Himalayan Black Bear

- Also known as **Asiatic Black Bear** or **Moon Bear** due to **crescent- shaped white mark** on its black chest.
- **Characteristics:** Largely **nocturnal and solitary**, with occasional sightings during the day.
 - ⊕ Life span of **15-25 years** and gestation period of **200 to 240 days**.
- **Habitat:** Heavily forested broad- leaved and coniferous forests.
- **Distribution:** Himalayan region of Tibet, India, China and Bhutan.
- **Conservation Status:**
 - ⊕ **IUCN:** Vulnerable
 - ⊕ **Wildlife Protection Act, 1972:** Schedule I
- **Threat:** Poached for its bile.



Transposon-associated proteins (TnpB)

ICAR patented Transposon-associated proteins (TnpB) based-Genome Editing technology.

- **Transposons** or **Jumping genes** are DNA sequences that can transpose or move themselves to new positions within the genome of a single cell.

About Transposon-associated proteins (TnpB)

- It acts as **molecular scissors** to cleave the DNA of a gene at a predetermined target site and change its sequence similar to **CRISPR-associated Cas9 and Cas12a proteins**.
 - ⊕ Such editing is aimed at bringing forth desirable alterations in that gene's expression and function.
- **Significance:**
 - ⊕ **Compact:** much smaller (400-500 amino acids per molecule) than Cas9 proteins.
 - ⊕ **Easier Transfer:** transfer of proteins is done via viral vectors directly into the cell.



Protected Area Permit

Nagaland Chief Minister urged the Union Home Minister to urgently review the re-imposition of the **Protected Area Permit (PAP) regime**.

About Protected Area Permit (PAP)

- A PAP is a special permit required for foreign nationals to visit certain sensitive areas in India.
 - **Legal Framework:** Foreigners (Protected Areas) Order, 1958.
 - **Areas Covered:** All areas falling between the 'Inner line' and the International Border of the State.
 - ⊕ It is required for many **states and Union Territories** such as Mizoram, Manipur, etc.
 - **Issuing Authority:** Union Ministry of Home Affairs.
- Note:** **Inner Line Permit (ILP)** issued by the Government of India to allow inward travel of an Indian citizen into a protected area for a limited period.



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