

## Department of Biotechnology and Biotechnology Research and Innovation Council introduces 'One Day One Genome' initiative

Initiative aims to publicly release a **fully annotated bacteriological genome**, enhancing **scientific knowledge**, **driving innovation**, and making **microbial genomics** data accessible to researchers.

### About Genome and Genome Sequencing

- **Genome:** Complete set of genetic material (deoxyribonucleic acid or **DNA**/ ribonucleic acid or **RNA**) containing an organism's entire **hereditary information**, composed of **unique nucleotide base sequences**.
- **Genomic Sequencing:** The process of determining the precise order of **nucleotide bases** (**Adenine (A)**, **Cytosine (C)**, **Guanine (G)**, and **Thymine (T)** in **DNA**; **A, C, G, Uracil (U)** in **RNA**) within an organism's genetic material.

### Applications of Genome Sequencing (GS)

- **Disease detection:** To evaluate rare disorders, preconditions for disorders. **E.g.**, Cystic fibrosis and thalassemia.
- **Pharmacogenomics:** Involves evaluating effectiveness & safety of drugs on the basis of information from an individual's GS.
- **Metagenomic Sequencing:** Explores collective genomes of multiple species in an environmental niche, enabling rapid species identification and environmental impact analysis.
- **Agriculture:** Identify genetic markers for disease resistance and drought tolerance in various crop plants; reduced time to develop new varieties of crop plants; decipher the host-pathogen relationships in crops.
- **Microbial Sequencing:** It enables advanced biofuel development, innovative diagnostic tools, improved vaccines, and sophisticated environmental cleanup techniques.

### Significance of Microbes

- **Environmental:** Role in biogeochemical cycles, soil formation, etc. **E.g.**, **Algae**- make food using sunlight and give off oxygen into the air.
- **Human body:** Essential for our digestion, immunity and even mental health.
- **Household Products:** Development of flavors, foods and beverages. **E.g. Lactic Acid Bacteria (LAB)** are used in food fermentation.
- **Industrial:** Baker's yeast is used for bread & drinks like beer from cereals and fruit.
- **Others:** Biofuel production by yeast; Sewage Treatment; etc

## Jeddah Commitments adopted at Fourth Global High-Level Ministerial Conference on Antimicrobial Resistance (AMR)

It is a **comprehensive framework** for global action to **combat AMR** through the **One Health approach**.

- Commitments aim to **translate the Political Declarations of the UNGA's High-Level Meeting on AMR into practical commitments** for urgent actions.
  - ⊕ **AMR** occurs when germs like bacteria, viruses, etc. **develop the ability to defeat the drugs designed to kill them.**

### Key highlights of Jeddah commitments (Non-legally binding instrument)

- **One Health AMR learning hub:** Focused on sharing best practices and building capabilities for implementing multi sectoral National Action Plans on AMR.
  - ⊕ **One Health Approach** is an integrated, unified approach aimed to **sustainably balance and optimize health of people, animals and ecosystems.**
- **Independent Panel for Evidence on Action Against AMR by 2025:** To avoid duplication of ongoing efforts.
- **National AMR coordinating mechanism:** To implement and ensure sustainable financing and monitoring of National Action Plans (NAPs).
- **Promotes global data sharing** through platforms such as GLASS AMR/AMC, ANIMUSE, and INFARM.
- **Adherence to Codex Alimentarius Commission guidelines:** To ensure the prudent and responsible use of antimicrobials.
- **Supports Quadripartite organizations (FAO, WHO, WOA, UNEP):** To achieve 2030 goals of UNGA Political Declaration on AMR.

### Initiatives to combat AMR

- **Global initiative:**
  - ⊕ Global Antimicrobial Resistance and Use Surveillance System (GLASS).
  - ⊕ ReAct - Action on Antibiotic resistance.
  - ⊕ Global Action Plan on Antimicrobial Resistance.
- **Indian initiatives:**
  - ⊕ National Program on AMR containment (12th FYP).
  - ⊕ Red Line campaign
  - ⊕ National AMR surveillance network of state medical college labs (NARS-Net).

## Parliamentary Standing Committee on Defence reviews Indian Coast Guard's (ICG) role in coastal security


ICG provided a comprehensive overview of the its **operational capabilities, strategic initiatives, and preparedness** to address the nation's coastal security challenges.

### Security Concerns of the coast


- **Terrorist maritime infiltration:** Potential sea-based terrorist attacks. E.g., 2008 Mumbai attacks.
- **Maritime Trafficking Risks:** Smuggling of gold, luxury items, drugs & potential use of maritime routes for illegal trade.
- **Industrial & strategic infrastructure vulnerabilities:** Numerous Special Economic Zones along coastline; Critical oil and gas infrastructure (refineries, offshore platforms), 13 major ports handling 90% of maritime trade, etc.
- **Risk of damage to strategic installation:** Naval commands (Vishakhapatnam, Mumbai, Kochi, Port Blair); Nuclear power plants at Tarapur, Kudankulam, Kalpakkam.
- **Other Challenges:** Poor coordination among agencies, illegal fishing, marine pollution, and vulnerability to natural disasters.

### Steps taken to strengthen coastal security

- **Organizational Initiatives:**
  - ⊕ **NCSMCS (National Committee for Strengthening Maritime and Coastal Security):** A national forum for reviewing maritime and coastal security.
  - ⊕ **National Command Control Communications and Intelligence** for enhanced surveillance.
- **Maritime Domain Awareness (MDA):** Enhanced through the Coastal Surveillance Network (CSN) with radars, sensors, Automatic Identification System (AIS) etc.
- **Procedural Initiatives:** SAGAR Initiative, Sea Vigil Exercise, Coastal Security Scheme.



## Indian Coast Guard



- ⚖️ **Legislation:** The Coast Guard Act of 1978
- 🎯 **Objective:** Safeguarding India's 11,098 km coastline and ensuring the security of vital maritime trade routes.
- 🏢 **Functions:** include protecting offshore installations, assisting fishermen, preserving the marine environment, preventing pollution, supporting anti-smuggling operations, and enforcing maritime laws.
- 🏛️ **Ministry:** Ministry of Defence.

## Just transitions must reflect climate justice, India at CoP29

India underscored the need for global climate justice and equitable action during the Second Annual High-Level Ministerial Round Table on Just Transition at CoP29 .

### About Just Transitions

- It is broadly **defined** as ensuring that **no one is left behind or pushed behind in the transition to low carbon and environmentally sustainable economies** and societies.

### Need for just transitions

- **Climate Change Mitigation:** Switching to low-carbon energy is key to limiting global warming.
- **Global Commitments:** Help in meeting India's Nationally determined contributions (NDCs) and Panchamrita Pledge.
- **Energy Security:** Reduces reliance on fossil fuel imports.

### Challenges in just transition

- **Determining cost of just energy transition:** At global level, there is no established **empirical method** to estimate the cost of a just energy transition
- **Intellectual Property Issues:** IPR on green technologies hinders their access to developing countries.
- **Ethical Dilemmas:** Equity and Responsibility, Environmental Justice, Economic Justice etc.
- **Other Issues:** Limited domestic financial resources, May lead to high economic vulnerabilities etc.

### Way ahead

- Unrestricted **Technology Transfer**
- **Equitable Public Climate Finance** from Developed Countries
- **Strengthened International Cooperation** and Trust in Climate Action
- **Set up National Just Transition body** to independently monitor Just transition

### Initiatives Taken for Just Transition in India

- **PLI Scheme:** To build an ecosystem for manufacturing of high efficiency solar PV modules in India.
- **Sovereign Green Bonds** to reduce carbon intensity.
- **National Clean Energy Fund (NCEF)** funds clean energy ventures through a coal cess .
- Launch of **Green Term Ahead Market** to facilitate sale of renewable energy power through exchanges.

## Guru Ghasidas-Tamor Pingla Tiger Reserve (TR) notified as 56th TR of India

On the advice of National Tiger Conservation Authority (NTCA), Chhattisgarh government notified the areas comprising the Guru Ghasidas National Park and Tamor Pingla Wildlife Sanctuary as the 56th TR of India.

### Key details

- After Guru Ghasidas - Tamor Pingla TR being notified Chhattisgarh now has 4 TRs: Indravati TR, Udanti-Sitanadi TR & Achanakmar.
- ⊕ TR is notified by State Governments under the Wildlife (Protection) Act, 1972 on advice of NTCA.
- It's the India's third largest TR after Nagarjunasagar-Srisailem TR (A.P) and Manas TR (Assam).
- A TR comprises:
  - ⊕ Core/critical area: Required to be kept as inviolate, without affecting the rights of the Scheduled Tribes or such other forest dwellers as per the Forest Rights Act, 2006.
  - ⊕ Buffer/ peripheral area: It promotes human-wildlife coexistence, with lesser protection. It recognizes local rights, determined through Gram Sabha.

### Location & Landscape of Guru Ghasidas-Tamor Pingla TR:

- **Geography:** Chota Nagpur plateau and partly in Baghelkhand plateau.
- **Fauna:** leopards, hyenas, jackals, wolves, sloth bears, etc.
- **Rivers:** Hasdeo Gopad, Baranga etc.
- **Adopts Landscape approach to conservation:** As envisaged in the National Wildlife Action Plan (2017-31), the TR is contiguous with the Sanjay Dubri TR (MP), and connected with Bandhavgarh TR (MP) and Palamau TR (Jharkhand)

### About Landscape approach to tiger conservation:

- It involves viewing protected areas as a network of populations interconnected to each other through corridors to support viable tiger populations.
- ⊕ Interconnected populations are referred to as meta-populations.
- **Significance:** Habitat connectivity, gene flow, reducing inbreeding depression, avoiding translocations etc.

## Periodic Labour Force Survey (PLFS) Data Shows Improved Women Employment Indicators over Last Six Years

PLFS (Conducted by Ministry of Statistics and Programme Implementation since 2017-18) aims to estimate key employment and unemployment indicators.

### Key Trends in Women Labor Participation:

- Increased female employment indicators(Between 2017-18 and 2023-24):
  - ⊕ WPR for Women: Doubled from 22% in 2017-18 to 40% in 2023-24;
  - ⊕ LFPR for Women: Increased from ~23% to ~41%;
  - ⊕ Unemployment Rate: Reduced from ~5.6% to 3.2%.
  - ⊕ Rural Female LFPR: Increased significantly by 23 percentage points between 2017-18 and 2023-24 (~25% in 2017-18 and ~48% in 2023-24)
- Upward trend of educated women (post-graduate and above) in workforce: Increase from 35 percent in 2017-18 to 40 percent in 2023-24.
- Earnings Growth for self-employed: Female self-employed workers saw steady growth in earnings.

### Barriers in Women Labor Force Participation:

- **Social:** Child care/personal commitments in home making; Fertility rates and the age of marriage;
- **Economic:** lack of employment opportunities; Effect of household income on participation;
- **Education:** Continuing focus on higher qualifications;
- **Other:** Poor infrastructure, rural residence, and inadequate care and support systems etc.

### Government initiatives promoting Women LFPR:

- **Legislative Actions:** Maternity Benefit (Amendment) Act, 2017; The Equal Remuneration Act, 1976 etc.
- **Schemes:** Skill India Mission; Stand up India; National Rural Livelihood Mission etc.

### Key Indicators used in PLFS

- **Worker Population Ratio (WPR):** Percentage of employed persons in the population.
- **Labor Force Participation Rate (LFPR):** Percentage of persons in labor force (i.e. working or seeking or available for work) in the population.
- **Unemployment Rate (UR):** Percentage of persons unemployed among persons in the labour force.

## Also in News



### Comptroller and Auditor General (CAG)

Senior IAS officer, K Sanjay Murthy appointed as next CAG of India.

### About CAG and it's related constitutional Provisions

- **Art 148:**
  - ⊕ **Appointment:** By President of India by warrant under his hand and seal.
  - ⊕ **Salary and service condition:** Determined by Parliament by law, and charged on Consolidated Fund of India (CFI).
  - ⊕ **Reappointment:** Not eligible for both central and state government.
- **Art 149:** Duties and powers of CAG to be determined by Parliament.
- **Art 151:** Reports of CAG shall be submitted to President, who shall cause them to be laid before each House of Parliament.
- **Comptroller and Auditor General of India (Duties, Powers, and Conditions of Service) Act, 1971:**
  - ⊕ **Tenure:** 6 years or up to age of 65 years whichever is earlier.
  - ⊕ **Removal:** Removed by President on same grounds and in same manner as a judge of Supreme Court.



### Bio-Leaching

Miners have extracted gold and other metals from discarded electronics using bioleaching.

### About Bioleaching

- It is a method used to extract metals(Copper, gold Etc.) from various minerals and waste materials using biological processes, particularly microorganisms.
- **Microorganisms Involved:** E.g. Heterotrophic bacteria (Pseudomonas sp., Bacillus sp.) autotrophic bacteria (Thiobacilli sp.), and heterotrophic fungi (Aspergillus sp., Penicillium sp.)
- **Advantages:**
  - ⊕ **Environmentally Friendly:** Reduces air pollution as compared to smelting, Minimizes greenhouse gas emissions.
  - ⊕ **Cost-Effective:** Ideal for low-grade ores.
  - ⊕ **Energy-efficient:** Uses lower energy compared to high-temperature pyrometallurgy or chemical-intensive hydrometallurgy.





### Debt Recovery Tribunal

Recently, Supreme Court issued notice to Ministry of Finance highlighting critical vacancies in **Debt Recovery Tribunals (DRTs)** across India.

- Nearly one-third of the 39 DRTs in the country are currently non-functional

#### About Debt Recovery Tribunals:

- **Statutory judicial bodies** established under the **Recovery of Debts and Bankruptcy Act (RDB Act), 1993** having original jurisdiction.
- **Purpose:** Expedient adjudication and recovery of debts due to banks and financial institutions, insolvency resolution etc.
- **Debt Amount:** Rs.20 lakh or more.
- **SARFAESI Act, 2002:** Simplified the **recovery procedure** of secured debts from borrowers **without intervention of Courts** at the first stage.



### Grievance Redressal Assessment Index (GRAI)

Recently **Grievance Redressal Assessment And Index (GRAI) 2023** has been released by **DARPG**.

#### About GRAI

- **Conceptualized:** by **Department of Administrative Reforms and Public Grievances (DARPG)** based on recommendation of Parliamentary Standing Committee of Ministry of Personnel, Public Grievances and Pensions.
  - ⊕ Index is Based on **Four Dimensions (Efficiency, Feedback, Domain and Organizational Commitment)** and **11 Indicators Assessing Grievance Redressal Mechanism** Adopted By Central Ministries And Departments.
- **Objective:** Highlight strengths and areas of improvement regarding grievance redressal mechanisms of various organizations.
- **Ranking:** **Department Of Agriculture And Farmers Welfare** Topped The Ranking Followed By Department Of Posting Group A.



### GSAT-N2

Recently **SpaceX's Falcon-9** deployed **India's GSAT-N2** satellite into orbit.

#### About GSAT-N2 (Geostationary Satellite-20)

- It is a communication satellite of **NewSpace India Limited (NSIL)**.
  - ⊕ **NSIL** is commercial arm of the **Indian Space Research Organisation (ISRO)**.
- **Features:** **Geosynchronous transfer orbit; Life span - 14 years; Mass around 4,700 kg.**
  - ⊕ **India's primary launch vehicle, LVM-3, can carry payloads up to 4,000 kg**, thus rendering it incapable of carrying the GSAT payload (SpaceX's Falcon-9)
- **Significance:** It will enhance broadband services and in-flight connectivity across the Indian region. It offers pan-India coverage, including Andaman and Nicobar and Lakshadweep islands.



### Department of Investment and Capital Asset Management (DIPAM)

**DIPAM issues revised capital restructuring norms for CPSEs.**

- Financial sector CPSEs like NBFCs are mandatory to pay a **minimum annual dividend of 30% of net profit or 4% of the net worth, whichever is higher.**
- These guidelines do not apply to public sector banks, public sector insurance companies and also to the body corporate.

#### About DIPAM

- DIPAM comes under the **Ministry of Finance.**
- **Functions:** Deals with matters relating to **management of Central Government investments in Central Public Sector Enterprises (CPSEs)**
- Three major areas of its work relate to **Strategic Disinvestment and Privatisation, Minority Stake Sales and Capital Restructuring, bonus, dividends, etc.**



### Sustainable Trade Index, 2024

India has been ranked 23rd on the Sustainable Trade Index 2024.

#### About Sustainable Trade Index

- **Genesis:** It was created in 2022 by **IMD World Competitiveness Center** and the **Hinrich Foundation.**
- **Objective:** It evaluates readiness of 30 economies for global trade, promoting growth, environmental protection, and societal development across three key pillars: economic, environmental, and societal.
- **Sustainable Trade:** Trade that provides mutually beneficial outcomes for trading partners while effectively balancing economic, social, and environmental considerations.
- **Best Performing Nations:** **New Zealand** followed by the **UK, Australia** etc



### Buddha's Relics

Recently excavations began at Ramgram, led by the **Archaeological Survey of India (ASI)**, to discover **Buddha's eighth relic.**

#### About Buddha's Relics:

- These are **Lord Buddha's cremated remains.**
- **Stupas were constructed** over them at:
  - ⊕ **Rajagraha, Vaishali, Kapilavastu, Allakappa, Ramagrama, Vethadipa, Pava, Kushinagar and Pippalvina.**
- As per **buddhist beliefs**, lord Buddha **attained salvation (Mahaparinirvana) in Kushinagar district (U.P)** and was **cremated by Mallas of Kushinagar.**

## Personality in News



### Lala Lajpat Rai (28th January 1865 – 17th November 1928)

Nation remembered **Shri Lala Lajpat Rai**, popularly known as **Punjab Kesari**, on his 96th death anniversary, today.

#### Early life:

- Born in **Dhudike, Punjab**, he became a **lawyer and co-founded the Hisar Bar Council.**

#### Contribution

- He was **one of the three members of the Lal Bal Pal trio** (Lala Lajpat Rai, Bal Gangadhar Tilak, and Bipin Chandra Pal).
- Established **'The People'** journal and contributed to **'The Tribune'** newspaper.
  - ⊕ Authored several books, including biographies of **Mazzini, Garibaldi, Shivaji, and Swami Dayanand.**
- Helped **Mahatma Hansraj** establish **nationalistic Dayananda Anglo-Vedic School, Lahore.**
- He founded **'Servants of the People Society (1921)** and **Indian Home Rule League of America..**
- He was elected **President of the Indian National Congress in the Calcutta Special Session of 1920.**
- **When the Simon Commission visited Lahore** on 30 October, 1928, he **led a non-violent march in protest against it.**
  - ⊕ He **died of severe head injuries** he sustained due to police lathi charge

#### Values

- **Honesty, spirit of independence, virtues of charity and devotion, etc.**



AHMEDABAD



BENGALURU



BHOPAL



CHANDIGARH



DELHI



GUWAHATI



HYDERABAD



JAIPUR



JODHPUR



LUCKNOW



PRAYAGRAJ



PUNE



RANCHI