NATIONAL COMPANY LAW APPELLATE TRIBUNAL (NCLAT)

- The **NCLAT** is a **quasi-judicial body** constituted under **Section 410 of the Companies Act, 2013**. It was established to **hear appeals** against the decisions of the **National Company Law Tribunal (NCLT)**, functioning since **1st June 2016**.
- Its main objective is to **promote timely corporate dispute resolution**, ensure **transparency**, and improve **efficiency in insolvency and corporate governance matters**.
- **Functions of NCLAT include**:
    - Hearing appeals against orders of **NCLT** under **Section 61 of IBC**.
    - Hearing appeals against orders of the **Insolvency and Bankruptcy Board of India (IBBI)** under **Sections 202 and 211 of IBC**.
    - Hearing appeals against orders of the **Competition Commission of India (CCI)**.
    - Hearing appeals related to the **National Financial Reporting Authority (NFRA)**.
    - Giving **advisory opinions** when legal issues are referred by the **President of India**.
- **Headquarters**: Located in **New Delhi**.
- **Composition**: It includes a **Chairperson**, along with **Judicial and Technical Members**, all appointed by the **Central Government** based on expertise in **law, finance, accountancy, and administration**.
- **Powers and Procedure**:
    - NCLAT can **regulate its own procedure** and possesses powers equivalent to a **civil court** under the **Civil Procedure Code, 1908**.
    - It can summon witnesses, receive affidavits, enforce production of documents, and issue commissions.
    - Orders passed by NCLAT are **enforceable like civil court decrees**.

- Appeals against NCLAT orders can be filed in the **Supreme Court of India**.
- Civil courts have **no jurisdiction** over matters within the purview of NCLAT.
- No court or authority can **grant injunctions** against any action taken by NCLAT under its legal authority.

- **Timely disposal**: NCLAT is required to **dispose of appeals within six months** from the date of receipt to ensure swift resolution.

INTERNATIONAL MARITIME ORGANISATION (IMO)

- The **International Maritime Organisation (IMO)** is a **specialised agency of the United Nations (UN)**, responsible for the **safety and security of international shipping** and the **prevention of marine and atmospheric pollution by ships**.
- It contributes directly to **UN Sustainable Development Goal (SDG) 14**, which focuses on the **conservation and sustainable use of oceans and marine resources**.
- The IMO **formulates regulations** on **shipping safety, maritime security, and environmental protection**, but **does not enforce** Once a member state adopts a regulation, it becomes part of that country's **domestic law**.
- The organisation also deals with **legal matters** such as **liability, compensation**, and **facilitation of maritime traffic**.
- It was initially established as the **Inter-Governmental Maritime Consultative Organization (IMCO)** in **1948**, became a **UN specialised agency in 1959**, and was renamed **IMO in 1982**.
- The IMO has **174 member states** and is **headquartered in London**.

Organisational Structure of IMO

- The **Assembly** is the **supreme governing body**, comprising all member states. It meets every **two years** to approve the **work programme, budget**, and elect members to the Council.

- The **Council** acts as the **Executive Organ**, overseeing IMO's work in between Assembly sessions.
- The IMO has **five major Committees**, which are responsible for **policy development and regulation formulation**, including the **Marine Environment Protection Committee (MEPC)**.
- Funding is sourced through **mandatory contributions by member states**, and also from **voluntary donations and commercial revenue**.

MARPOL Convention (International Convention for the Prevention of Pollution from Ships)

- The **MARPOL Convention** is the **primary international treaty** to prevent **pollution of the marine environment** from ships due to **operational or accidental causes**.
- It was **adopted in 1973** under the IMO and supplemented by the **Protocol of 1978**, which was introduced following major **tanker accidents** in the mid-1970s.
- **India is a signatory to MARPOL** and adheres to its annexes through domestic regulations.

STRENGTHENING JUDICIAL ACCOUNTABILITY - SUPREME COURT JUDGES DECLARE ASSETS

- The recent **public declaration of assets by 21 Supreme Court judges**, under the leadership of Chief Justice of India Sanjiv Khanna, marks a significant step towards **transparency and accountability in the judiciary**.
- This move **addresses longstanding concerns** about **corruption allegations within the judiciary** and **reaffirms public trust** in judicial institutions.

Judicial Immunity and the Need for Accountability:

- **Legal framework governing judicial immunity:**
  - Judges are granted extensive protection under the -
    - **Judicial Officers Protection Act, 1850:** Grants immunity for judicial acts done in good faith.

- **Judges (Protection) Act, 1985:** Shields judges from civil/criminal proceedings related to their judicial duties.

- However, these protections are **not absolute** and do not prevent action against judges for misconduct in their individual capacity.

- **Past initiatives:**
  - **In 2009**, the Supreme Court passed a resolution endorsing the publication of the assets of judges. As it was **voluntary**, the portal for uploading these details has remained dormant ever since.
  - **Recent disclosures** were **prompted by the** discovery of **unaccounted cash at a Delhi High Court judge's residence.**
- **Current concerns:** The **opacity** in judicial conduct and prosecution continues to **erode public confidence.**

Key Challenges and Way Ahead in Ensuring Accountability:

- **High threshold for impeachment:**
  - Rarely used; **no sitting judge in India** has ever been impeached or convicted.
  - **The opaque design** of prosecution mechanisms protects judicial independence but also prevents scrutiny.
- **Lack of clarity under Lokpal Act:**
  - Judges are yet to be explicitly brought under the ambit of the Lokpal.
  - Adds to **ambiguity** in initiating independent investigations.
- **Need for systemic reform:**
  - Asset declarations are a symbolic step.
  - **Broader institutional reforms and legal clarity** are required to establish a robust accountability mechanism.

Conclusion:

- While the **public declaration of assets** by Supreme Court judges is a commendable step towards transparency, it **merely scratches the surface of the deeper issues** plaguing judicial accountability in India.

INDIA'S RISING E-WASTE, THE NEED TO RECAST ITS MANAGEMENT

- **India's digital revolution is redefining its development trajectory,** propelling the nation towards its vision of Viksit Bharat, a developed India.
- **From smartphones and laptops to sophisticated industrial and medical technologies**, digital infrastructure has become the cornerstone of economic growth, social inclusion, and innovation.
- However, **this transformation comes with a significant environmental cost:** the exponential rise in electronic waste (e-waste).
- As India emerges as one of the world's largest generators of e-waste, **effective management of this growing challenge becomes essential to ensure sustainable progress.**

The E-Waste Surge: A Looming Challenge and Consequence

- **The E-Waste Surge**
  - India's e-waste landscape has experienced **alarming growth in recent years.**
  - Between 2017-18 and 2023-24, **the country's e-waste volume surged by over 151%,** rising from 7,08,445 metric tonnes to 17,78,400 metric tonnes.
  - This **translates to an annual increase of approximately 1,69,283 metric tonnes.**
  - These **figures position India alongside global e-waste giants such as China, the United States, Japan, and Germany.**
  - As the digital ecosystem deepens, **India must balance its technological advancement with robust environmental safeguards.**
- **Consequences of Mismanaged E-Waste**
  - The cost of ineffective e-waste management is **multifaceted** and severe.
  - Environmentally, **India suffers losses exceeding $10 billion annually due to pollution from harmful substances** such as cyanide, sulphuric acid, and lead.

- Socially, **the unregulated and often illegal recycling sector,** dominated by informal workers, including women and children, **incurs a human cost, with average lifespans of these workers plummeting below 27 years** due to toxic exposure.
- Moreover, **informal recycling methods are economically inefficient,** resulting in the **loss of critical metals worth over ₹80,000 crore and an estimated $20 billion in unaccounted tax revenue** each year.

Conclusion

- India's **digital ascent** must be matched by **environmental responsibility**.
- **The explosive growth in electronic waste demands systemic interventions** that combine regulation, economic incentives, and innovation.
- **Extended Producer Responsibility** and a stable floor price for recycling certificates **offer a transformative solution.**
- **As India aspires to become a global sustainability leader, these measures will be critical** in ensuring that the journey **toward Viksit Bharat is not only technologically advanced but also environmentally conscious** and socially just.

WHAT IS GERMANIUM?

- It is a **chemical element** between silicon and tin in **Group 14** (IVa) of the periodic table.
- It has the chemical **symbol Ge** and the **atomic number 32.**
- It is a **silvery-gray metalloid,** intermediate in properties between the metals and the nonmetals.
- It has a **diamondlike crystalline structure,** and it is similar in chemical and physical properties to silicon.
- Germanium is **stable in air and water** and is **unaffected by alkalis and acids, except nitric acid.**

- Although germanium was not **discovered** until **1886 by Clemens Winkler,** a German chemist, its existence, properties, and position in the periodic system had been **predicted in 1871 by the Russian chemist Dmitry Ivanovich Mendeleyev,** who called the hypothetical element ekasilicon.
- Germanium did not **become economically significant** until **after 1945, when its properties as a semiconductor were recognized** as being of value in electronics.
    - It remains of primary **importance in the manufacture of transistors** and of components for devices such as **rectifiers and photocells.**
- It is widely distributed in nature but is **too reactive to occur free.**
- Germanium **ores are rare**. They are found in small quantities as the minerals **germanite and argyrodite.**
- Today, germanium is **extracted as a by-product of zinc production** and f**rom coal fly ash.**
- It is estimated that **75% of worldwide production** of germanium is **sourced from zinc ores,** mainly the zinc sulfide mineral sphalerite, and 25% from coal.
- **Major Producers:**
    - The major worldwide producer of germanium is **China**, responsible for around **60% of total production.**
    - The remaining production of germanium comes from **Canada, Finland, Russia,** and the United States.

FERROELECTRICITY

- **Ferroelectricity** is a property of certain **non-conducting crystals** or **dielectrics** that exhibit **spontaneous electric polarisation**, where the centres of **positive and negative charges separate**, making one side of the crystal positive and the other negative.
- This **electric polarisation** can be **reversed** by applying an appropriate **external electric field**.

- The term **ferroelectric** is derived from **ferromagnetism**, where magnetic domains align spontaneously; similarly, in ferroelectrics, **electric dipoles align** spontaneously in domains.
- **Ferroelectric domains** are clusters where dipoles are aligned. These domains can be reoriented by strong electric fields.
- Ferroelectricity vanishes above a critical temperature called the **Curie Temperature**, where thermal agitation disrupts dipole alignment.

Domain Walls in Ferroelectrics

- **Domain walls** are the **boundaries between differently polarised regions** in a ferroelectric material.
- These walls often exhibit **electrical or magnetic properties** different from the surrounding domains.
- Some **domain walls** may become **electrically conductive** even when the bulk of the material is non-conductive, or **magnetically active** even if the domain itself is nonmagnetic.
- These unique properties make domain walls potential candidates for **nanoelectronic components** for **memory, sensing, and signal processing** in **low-power devices**.

New Visualisation Technique by ORNL

- This method, called **Scanning Oscillator Piezoresponse Force Microscopy (SO-PFM)**, is capable of detecting both **slow and abrupt movements** of domain walls under **rapidly fluctuating electric fields**.
- Traditional methods offered only static snapshots, like a photo before and after a football play, missing the **intermediate dynamics**.
- The new method creates **dynamic visualisations**, helping researchers understand how domain walls **evolve** and how much **energy is required** to move them.
- It uses **precision-timed control electronics** with **atomic force microscopy (AFM)** to monitor real-time changes, a capability not previously possible.

RAIKA TRIBE

- The **Raika tribe** is an **indigenous pastoralist community** primarily inhabiting the **arid and semi-arid regions of Rajasthan**, notably around **Kumbhalgarh in Rajsamand district**.
- Also known as **Rabaris**, they have a **distinct socio-cultural relationship with camels**.
- The **Raikas have historically been the principal breeders** of Rajasthan's **indigenous camel breeds**, especially the **Marwari camel**, known for its **strength, endurance, and desert adaptability**.
- For the Raikas, **camel herding is not just a livelihood** but a **cultural identity**, woven into **rituals, oral traditions, and seasonal migrations**.
- The **Raikas possess traditional knowledge** of **pasture cycles**, **animal health**, and **biodiversity**, which has historically **sustained the fragile ecology** of **Rajasthan's arid landscapes**.
- Their **age-old migratory grazing routes** allowed camels to feed on **medicinal desert shrubs**, enhancing both **animal health** and **ecosystem balance**.