1. **BHARAT Initiative :** Recently, the Indian Institute of Science (IISc), Bengaluru, launched **BHARAT**, a flagship initiative under the **Longevity India Program**, which aims to develop a comprehensive national database to define India-specific biological benchmarks for ageing.
   - **About BHARAT Initiative :** Stands for **- Biomarkers of Healthy Aging, Resilience, Adversity, and Transitions**
     - **Objective**: To **map physiological, molecular, and environmental indicators** that influence the ageing process in the Indian population.
     - **Key Goals**: Establish **India-specific biomarkers** for healthy ageing.
       - ✓ Create the **"Bharat Baseline"** — a reliable reference of what is biologically normal for Indians.
       - ✓ Bridge gaps in diagnostic benchmarks between **Western and Indian populations**.
       - ✓ Predict and delay onset of age-related diseases (e.g., Parkinson's, dementia).
       - ✓ Enable **early detection** through **proactive health markers** (e.g., organ function, inflammation).
     - **Use of Technology**: Artificial Intelligence (AI) and Machine Learning (ML)
   - **Key approaches: Multiparametric Analysis**: Studying a wide range of physiological and biological parameters.
     - **Advanced Clinical Assessment**: Conducting in-depth health evaluations across diverse age groups.
     - **Lifestyle and Environmental Factors**: Mapping the impact of habits, diet, living conditions, and surroundings on ageing.
     - **Comprehensive Biomarker Discovery**: Identifying biological markers that influence healthy ageing and resilience.
2. **Endocrine-disrupting Chemicals (EDCs):** Recent studies have uncovered alarming levels of microplastics in human blood. Research published in Nature Scientific Reports found microplastics in 89% of Indian samples, averaging 4.2 particles per millilitre.
   - A global study by Vrije Universiteit Amsterdam reported similar findings in 80% of participants. These particles often carry **endocrine-disrupting chemicals (EDCs),** raising serious concerns about their impact on human health.

- **About EDCs**: Natural or human-made substances that can mimic, block, or interfere with the body's hormones.
  - These chemicals are linked to a wide range of health problems in both humans and wildlife, including developmental, reproductive, neurological, and immune issues.
- **The Role of the Endocrine System:** Consists of glands across the body that release hormones into the bloodstream to regulate vital functions such as growth, metabolism, fertility, and reproduction.
  - **Sensitivity to Disruption:** Hormones function in very small quantities, so even minor disturbances caused by EDCs can lead to significant biological and developmental effects.
- **Impact of EDCs :** Disrupt hormonal balance, mimicking or blocking key hormones like estrogen and testosterone.
  - Impair male and female fertility, reducing sperm quality and egg health, and increasing risk of miscarriage.
  - Increase risk of hormone-related cancers, including breast, prostate, uterine, and testicular cancers.
  - Contribute to metabolic disorders like obesity, type 2 diabetes, and thyroid dysfunction.
  - Affect child development, leading to early puberty, learning disabilities, & respiratory issues.

3. **Cell Broadcast (CB) System** : Recently, the **Department of Telecommunications (DoT)** in collaboration with the **National Disaster Management Authority (NDMA)**,has started **nationwide testing** of a **Cell Broadcast (CB)** system aimed at delivering real-time disaster alerts to mobile users across India .

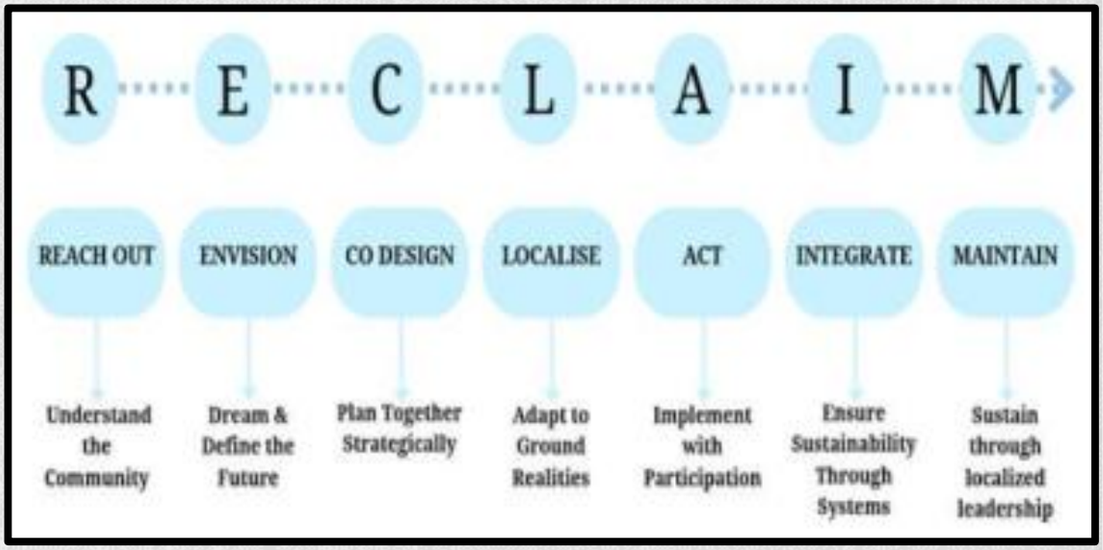
- **About CB System :** It is a technology that allows mobile network operators to send **text alerts to all mobile phones within a specific geographic area**, regardless of the network congestion.
  - It is being **indigenously developed** by the **Centre for Development of Telematics (C-DOT)**.
  - Unlike SMS, which is sent individually, CB messages are **broadcast simultaneously**, ensuring faster delivery—critical during emergencies.
  - **Purpose :** The system aims to deliver **real-time alerts** for natural and industrial disasters such as **earthquakes, tsunamis, lightning, and chemical leaks**.

- **How It Enhances Existing Systems:** CB technology complements the **Integrated Alert System (SACHET)**, which has already delivered over **6,899 crore SMS alerts** in more than **19 Indian languages** across all **36 States and Union Territories**.
  - While **SACHET** uses the **Common Alerting Protocol (CAP)** recommended by the **International Telecommunication Union (ITU)**, the **CB system** offers **instant, wide-area communication** that is especially useful during network congestion.
- **Future Scope:** Once fully operational, the CB system will send **multi-language alerts** to **all mobile users**, ensuring **inclusive and rapid emergency communication** across India.

4. **"Chemical Industry: Powering India's Participation in Global Value Chains" Report :** Recently, **NITI Aayog** released a comprehensive report titled "Chemical Industry: Powering India's Participation in Global Value Chains."
   - **Key Highlights :** India aims to become a $1 trillion chemical industry by 2040.
     - Increase share in **Global Value Chains (GVCs)** from **3.5% (2023)** to **5–6% by 2040**, with a potential to reach **12%** with reforms.
     - Achieve **net zero trade balance** in chemicals by **2040** (down from a $31 billion deficit in 2023). Generate **$35–40 billion** in additional exports by 2040.
     - India's chemical industry faces significant challenges, including **high import** dependence, outdated infrastructure, low R&D investment, and regulatory delays in environmental clearances.
     - Additionally, a major **skill gap** persists, especially in areas like green chemistry and industrial safety.
   - **About NITI Aayog** : Government of India's premier **policy think tank**, established in 2015 by a Union Cabinet resolution in place of the Planning Commission. It is **neither a Constitutional nor a statutory body**.
     - Its **twin mandate**: Oversee the adoption and monitoring of **Sustainable Development Goals (SDGs)** and promote **competitive and cooperative federalism**.
     - **Chairperson**: Prime Minister of India
     - **Governing Council** includes the PM, Chief Ministers, Lt. Governors, nominated Union Ministers, Vice Chairperson, full-time members, and domain experts.

- **Key Functions :** Focuses on **inclusive development**, especially for vulnerable groups, and integrates **national security** into economic policy.
  - Promotes a **knowledge, innovation, and entrepreneurial ecosystem**.
  - Acts as a **platform for resolving inter-sectoral issues** and supports evidence-based policymaking.

5. **RECLAIM Framework :** Recently, the Ministry of Coal announced the launch of the **RECLAIM Framework**, aimed at ensuring a just and sustainable transition for communities impacted by mine closures.
   - **About RECLAIM Framework**: Developed by the **Coal Controller Organisation** in collaboration with the **Heartfulness Institute**
     - A **community engagement and development framework** designed specifically for the **closure and post-closure phases of mining operations**.
     - **Key Features:** Provides a **structured, step-by-step guide** for inclusive community engagement during mine closures



     - ✓ Includes **tools, templates, and field-tested methods** tailored to India's socio-economic landscape.
     - ✓ Emphasizes **gender inclusivity**, representation of **vulnerable groups**, and alignment with **Panchayati Raj Institutions**.
     - ✓ Aims to support **ecological restoration**, build **community trust**, and promote **long-term socio-economic resilience**.

6. **SAKSHAM-3000 :** Recently, the Minister of State for Communications and Rural Development launched **SAKSHAM-3000**, a high-capacity 25.6 Tbps switch-cum-router developed by the **Centre for Development of Telematics (C-DOT)**.

- **About SAKSHAM-3000:** A Future-Ready Networking Solution designed for **high-performance computing clusters**, **telecom backbones**, and **hyperscale data centres**.
  - Supports **25.6 Terabits per second (Tbps)** data transfer with **ultra-low latency**.
  - Offers **32 ports of 400 Gigabit Ethernet (GbE)** and supports speeds from **1G to 400G**.
  - Supports key networking protocols like **Layer-2, Internet Protocol (IP), and Multi-Protocol Label Switching (MPLS)**.
  - Energy-efficient and designed for **high uptime** with **hot-swappable power and fan units**.
  - Includes advanced features like **Precision Time Protocol (PTP)** and **Synchronous Ethernet (Sync-E)** for time-sensitive networking.
  - Equipped with **Quality of Service (QoS)** tools like **Weighted Random Early Detection (WRED)** and **Weighted Round Robin (WRR)**.

7. **Financial Fraud Risk Indicator (FRI)** : Recently, the **Reserve Bank of India (RBI)** issued an advisory directing all **Scheduled Commercial Banks**, **Small Finance Banks**, **Payments Banks**, and **Co-operative Banks** to **integrate the Financial Fraud Risk Indicator (FRI)** into their systems.
   - **About FRI :** Developed by the **Digital Intelligence Unit (DIU)** under the **Department of Telecommunications (DoT)**, FRI is a **risk-based tool** that classifies mobile numbers as **Medium, High, or Very High risk** for financial fraud.
     - The classification is based on inputs from multiple sources, like: The **National Cybercrime Reporting Portal (NCRP)** under the **Indian Cyber Crime Coordination Centre (I4C)**
       - ✓ DoT's **Chakshu platform**
       - ✓ **Intelligence from banks and financial institutions**
   - **Key Features & Uses:** Enables **banks, NBFCs, and UPI service providers** to take **preventive action** against high-risk mobile numbers.
     - Banks can use FRI data to: Block or delay suspicious transactions and issue alerts or warnings to customers
   - The **Mobile Number Revocation List (MNRL)**—shared regularly by DIU—lists numbers disconnected due to cybercrime links, failed verification, or misuse.
     - Institutions such as **PhonePe, Paytm, HDFC Bank, ICICI Bank, PNB, and India Post Payments Bank** are already using FRI.