

### A targeting in the name of demography

**Prelims:** General Studies Paper - 1  
Current events of national and international importance

**Mains:** General Studies - 2  
Important aspects of governance, transparency and accountability, e-governance- applications, models, successes, limitations, and potential; citizens charters, transparency & accountability and institutional and other measures.

#### 1. Why was the High-Level Committee on Demographic Change constituted?

- The **Union Government constituted the committee in May 2026 to examine demographic changes in India.**
- Its **Terms of Reference (ToR) focus on illegal immigration, border management, and population trends.**
- The **committee is chaired by a retired Supreme Court judge and includes former civil and police officers.**
- **No professional demographer has been included in the committee.**
- Concerns have **been raised that demographic issues such as ageing and declining fertility may receive less attention.**

#### 2. What are the concerns regarding illegal immigration from Bangladesh?

- The **government has highlighted illegal infiltration as a factor behind demographic change.**
- The issue has been **politically significant, particularly in border States.**
- **Population growth in border districts is often cited as evidence of demographic change.**
- **Bangladesh has recorded strong economic growth and improved human development indicators in recent decades.**

- Questions **remain regarding the extent of undocumented migration and its impact on India's population structure.**

#### 3. What are the key fertility trends in India?

- **India's fertility rate has been declining for decades and is near or below replacement level.**

**Replacement-level fertility** is the total fertility rate at which a population exactly replaces itself from one generation to the next, usually estimated at about 2.1 children per woman.

- The country is gradually **moving towards the challenge of supporting an ageing population.**
- **Fertility rates among Muslims have fallen significantly over time.**
- The **fertility gap between Muslims and Hindus has narrowed considerably.**
- Factors such as **education, income, and women's empowerment influence fertility more strongly than religion.**

#### 4. Why are the committee's Terms of Reference being debated?

- The **ToRs include studying population changes among religious and social communities.**
- **Concerns have been raised that religious demographics may receive disproportionate attention.**
- The **committee is expected to examine variations in fertility patterns** across communities.
- The ToRs also **seek recommendations on identifying, detaining, and deporting illegal immigrants.**
- The debate highlights the need for demographic policies based on reliable data and long-term population trends.

## From borderland to India's strategic resource frontier

**Prelims:** General Studies Paper - 1

Economic and Social Development-Sustainable Development, Poverty, Inclusion, Demographics, Social Sector Initiatives, etc.

**Mains:** General Studies - 3

Indian Economy and issues relating to planning, mobilization, of resources, growth, development and employment.

### 1. Northeast and the Critical Minerals Push

- The Ministry of Mines recently described northeastern States such as **Manipur, Arunachal Pradesh, Meghalaya,** and **Mizoram** as **resource-rich frontiers**.
- The region is increasingly being viewed as a source of **critical minerals** and **strategic resources**.
- Important minerals** found in the region include:
  - ➔ Lithium
  - ➔ Cobalt
  - ➔ Nickel
  - ➔ Graphite
  - ➔ Rare Earth Elements (REEs)
  - ➔ Vanadium
- These minerals are essential for:
  - ➔ Batteries
  - ➔ Semiconductors
  - ➔ Renewable energy technologies
  - ➔ Defence systems

### 2. Expanding Exploration Activities

- India remains **dependent on imports for many critical minerals** and is **increasing domestic exploration**.
- The **Geological Survey of India (GSI)** conducted **43 critical mineral exploration projects** in northeastern States during **2022-23 to 2024-25**.
- Exploration activities** have expanded across:
  - ➔ Arunachal Pradesh
  - ➔ Meghalaya
  - ➔ Assam
  - ➔ Nagaland

### ➔ Manipur

In **Manipur**, exploration for **nickel, cobalt, and chromium** has recently begun.

### 3. Shift from Border Security to Resource Security

- Traditionally, the Northeast was viewed through the lens of:
  - ➔ Border security
  - ➔ Insurgency management
  - ➔ Connectivity projects
  - ➔ Geopolitical concerns
- Today, **resource security** is becoming as important as territorial security.
- Critical minerals are increasingly linked with:
  - ➔ Trade corridors
  - ➔ Supply-chain security
  - ➔ Strategic competition
  - ➔ Geopolitical influence
- The term **"frontier"** reflects a new national imagination of the Northeast as a region of **future economic and strategic value**.

### 4. Challenges: Land, Identity and Inclusion

- The Northeast is **not an empty frontier but a region with**:
  - ➔ Customary land systems
  - ➔ Local institutions
  - ➔ Strong cultural identities
  - ➔ Historical ties to territory
- Land issues** are closely linked to:
  - ➔ Authority
  - ➔ Identity
  - ➔ Memory
  - ➔ Community rights
- In places like **Manipur**, ongoing violence and displacement have heightened concerns about:
  - ➔ Land ownership
  - ➔ Resource control
  - ➔ Political representation

- Resource extraction without adequate participation may **create tensions**.
- The key question is **whether mineral development will**:
  - ➔ Promote **inclusive growth and local participation**, or
  - ➔ Simply assign another **strategic purpose to the region without benefiting its people**.

## Homo erectus fossil yields secrets long thought to be beyond genetics

**Prelims:** General Studies Paper - 1  
General Science.

**Mains:** General Studies - 3

Awareness in the fields of IT, Space, Computers, robotics, nano-technology, bio-technology and issues relating to intellectual property rights.

### 1. Changing Understanding of Human Evolution

- Earlier, scientists believed human evolution was **linear**, with one species replacing another in sequence.
- The famous “**ape-to-human**” illustration reflects this idea.
- Fossil discoveries in the 19th century suggested that **multiple human species coexisted** rather than replacing one another.
- Later, **radiometric dating** confirmed that different human species lived at the same time.

### 2. Genomic Discoveries and Interbreeding

- In **2003**, the **Human Genome Project** produced the first high-quality human genome sequence.
- In **2010**, scientists sequenced the **Neanderthal genome** and found that most modern humans carry **1-2% Neanderthal DNA**.
- In **2012**, the **Denisovan genome** was sequenced.
- Populations in **Oceania** and parts of **Southeast Asia** possess **3-6% Denisovan DNA**.
- These findings showed that modern humans **interbred** with other extinct human species.

### 3. Homo erectus Study and New Technique

- Recovering ancient **DNA** is difficult because it degrades after death due to:
  - ➔ **Enzymes**
  - ➔ **Microbes and fungi**
  - ➔ **Water and oxygen**
  - ➔ **Temperature changes and UV radiation**
- A recent study in **Nature** analyzed **Homo erectus** fossils from China dating to about **400,000 years ago**.
- Instead of DNA, researchers extracted **proteins from tooth enamel**.
- They used **acid etching**, which removes microscopic amounts of enamel while keeping the fossil largely intact.
- Protein sequences can provide clues about the original **genetic information**.

### 4. Key Findings and Significance

- Researchers recovered enamel proteins from **six Homo erectus individuals** (five males and one female).
- They discovered:
  - ➔ A **unique protein variant** not found in any other known **Homo** species.
  - ➔ Another protein variant shared with **Denisovans**.
- This suggests possible **interbreeding between Homo erectus-related populations and Denisovans** in East Asia.
- However, the evidence is **not conclusive** because it is based only on protein sequences, not the full genome.
- The study marks the **first successful recovery of meaningful molecular data from Homo erectus**.
- It reinforces the idea that human evolution was a **complex network of interacting species**, not a simple linear progression.
- Modern humans still carry genetic traces of extinct relatives such as **Neanderthals** and **Denisovans**, highlighting a **shared evolutionary history**.

## The Ordinance question before the SC

**Prelims:** General Studies Paper - 1  
Current events of national and international importance

**Mains:** General Studies - 2  
Separation of powers between various organs dispute redressal mechanisms and institutions

### 1. What historical precedent is cited and what does it show?

- In **1937**, U.S. President **Franklin D. Roosevelt** proposed expanding the Supreme Court up to **15 judges**.
- The **Senate Judiciary Committee rejected the proposal**, emphasizing the need for:
  - ☞ **“An independent Court, a fearless Court”**
  - ☞ A judiciary that does not bend **“out of fear or sense of obligation to the appointing power.**
- It established that **judicial independence must be free from executive influence or obligation.**

### 2. What recent development occurred in India?

- Five judges were appointed** to the Supreme Court.
- The **President issued an Ordinance (May 16)** increasing strength from **34 to 38**.
- Two appointments filled existing vacancies**, while **three are based solely on Ordinance-created posts.**
- The concern is not about the merit of appointees but about:
  - ☞ **The method of creating judicial posts via Ordinance rather than legislation.**

### 3. What constitutional principles are involved?

- Article 124(1):** Number of judges must be **decided by Parliament.**
- Article 123:** Ordinances are **temporary laws** that can lapse or be withdrawn.
- Judicial independence (Basic Structure)** includes not only functional autonomy but also **freedom from executive dependence for tenure or position**

- Key cases:
  - ☞ **National Judicial Appointments Commission case (2015):** upheld **judicial primacy in appointments.**
  - ☞ **D.C. Wadhwa (1986) & Krishna Kumar Singh (2017):** warned against **misuse of ordinance power.**
  - ☞ **Gokaraju Rangaraju (1981):** protects acts under **de facto doctrine.**

### 4. What are the implications and risks?

- If the Ordinance lapses, **court strength returns to 34**, creating **legal uncertainty.**
- Judges on such posts may appear **dependent on executive goodwill.**
- Justice V. Mohana** is most vulnerable if the timing of vacancies does not align.
- Even if resolved later, **perception of compromised independence harms credibility.**
- Core issue: judiciary has **risks its independence and tenure security on executive support.**
- Judicial strength must be increased only through **Parliamentary legislation**, with strict limits on Ordinance use, to safeguard **judicial independence and separation of powers.**

## KEYWORDS

### Gross Fixed Capital Formation (GFCF)

- Gross Fixed Capital Formation (GFCF), also known as **investment**, measures the **gross addition of fixed assets to an economy during a specific period**, before accounting for depreciation or consumption of fixed capital.
- It includes **spending on infrastructure, buildings, machinery, equipment, and other durable assets used in production.**
- GFCF **reflects the economy's capacity to expand production and support long-term growth.**
- It is a **key part of Gross Capital Formation (GCF)**, which also includes **Change in Stocks (Inventories) and Net Acquisition of Valuables** (items like gold, gems, and precious stones etc.).

- Higher GFCF generally indicates stronger investment activity and greater future economic potential.

### Indian Council of Medical Research (ICMR)

- The Indian Council of Medical Research (ICMR) was established in 1911 as the Indian Research Fund Association (IRFA) and was renamed ICMR in 1949.
- ICMR functions under the Department of Health Research, Ministry of Health and Family Welfare, Government of India.
- ICMR is responsible for conducting, coordinating, and funding medical research in India, with a focus on infectious diseases, non-communicable diseases, nutrition, reproductive health, and emerging health threats.
- The National Institute of Virology (NIV), Pune; National Institute for Research in Tuberculosis (NIRT), Chennai; National Institute of Nutrition (NIN), Hyderabad; National Institute of Epidemiology (NIE), Chennai; and National Institute of Malaria Research (NIMR), New Delhi are specialized institutes functioning under ICMR.
- These ICMR institutes support disease surveillance, biomedical research, healthcare innovation, and evidence-based public health policymaking across the country.

### Geological Survey of India (GSI)

- The Geological Survey of India (GSI) was established in 1851 and functions as an attached office under the Ministry of Mines.
- It was initially tasked with investigating and assessing the country's coal and mineral resources.
- GSI has evolved into a premier geoscientific organisation of international repute.
- It also serves as a vast repository of valuable geoscientific data that supports various developmental sectors in India.

## Species In News

### Snailfish

- Snailfishes are a group of tadpole-like fishes characterized by large heads, small eyes, and the absence of scales.
- They are found across the world's oceans, ranging from shallow coastal waters to the deepest ocean trenches.
- Certain species are highly adapted to life in the deep sea.
- The deepest snailfish ever recorded was filmed at a depth of 8,336 metres (27,000 feet) below the ocean surface, making it the deepest confirmed fish sighting ever documented.
- Other fish species may inhabit similar depths.
  - ➔ However, scientists believe that no fish is likely to survive much deeper than about 8,400 metres (28,000 feet) because of the extreme pressure conditions in the deep ocean.



## Places in news

### Aral Sea

- The **Aral Sea** is an **endorheic lake** located in **Central Asia**, historically bounded by **Kazakhstan (north)** and **Uzbekistan (south)**.
- It was once the **fourth-largest inland water body in the world**, but has **dramatically shrunk since the 1960s**, becoming one of the **worst environmental disasters globally**.
- The ecological crisis was primarily caused by **Soviet-era water diversion projects**, which redirected rivers for **cotton irrigation in desert regions**.
- It was historically fed by two major rivers: the **Amu Darya (from the south)** and the **Syr Darya (from the north)**.
- The shrinkage led to **fragmentation into hypersaline water bodies**, causing:
  - ➔ **Localized climate change**
  - ➔ **Collapse of the fishing economy**
  - ➔ **Toxic dust storms** from the **salt-encrusted exposed seabed**

