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EVIDENCE OF THE ANTHROPOCENE EPOCH AT CRAWFORD LAKE IN CANADA

GS I: Geography

Source: [IE](#)

In recent news: The Anthropocene Working Group (AWG) has put forward a proposition stating that the Anthropocene, a distinct geological epoch marked by substantial human influence on Earth's systems, commenced in 1950.

- If this proposal gains sufficient support from the majority, the International Union of Geological Sciences has the potential to formally endorse the **new Global Boundary Stratotype Section and Point (GSSP)** in August 2024.

What is the Global Boundary Stratotype Section and Point (GSSP)?

- **GSSP Definition:** The GSSP is a specific geological reference point that identifies the demarcation between two distinct geological time units.
- **International Standard:** It serves as a universally accepted criterion for defining and correlating various periods in Earth's geological history.
- **Importance of GSSPs:** GSSPs play a critical role in establishing the boundaries of epochs, ages, and other subdivisions within the geological time scale.

The Anthropocene Working Group (AWG):

- An interdisciplinary research group studying the Anthropocene as a geological time unit.
- Established in 2009 as part of the International Commission on Stratigraphy (ICS) and the Subcommission on Quaternary Stratigraphy (SQS).

Earth's Geological Timeline:

- The geologic time scale divides all time into **eons, eras, periods, epochs, and ages**.
- Earth's history includes four eons: **Hadean, Archean, Proterozoic, and Phanerozoic**.
- The current epoch is the Holocene, which began around 11,700 years ago after the Last Glacial Period.

The Anthropocene Epoch:

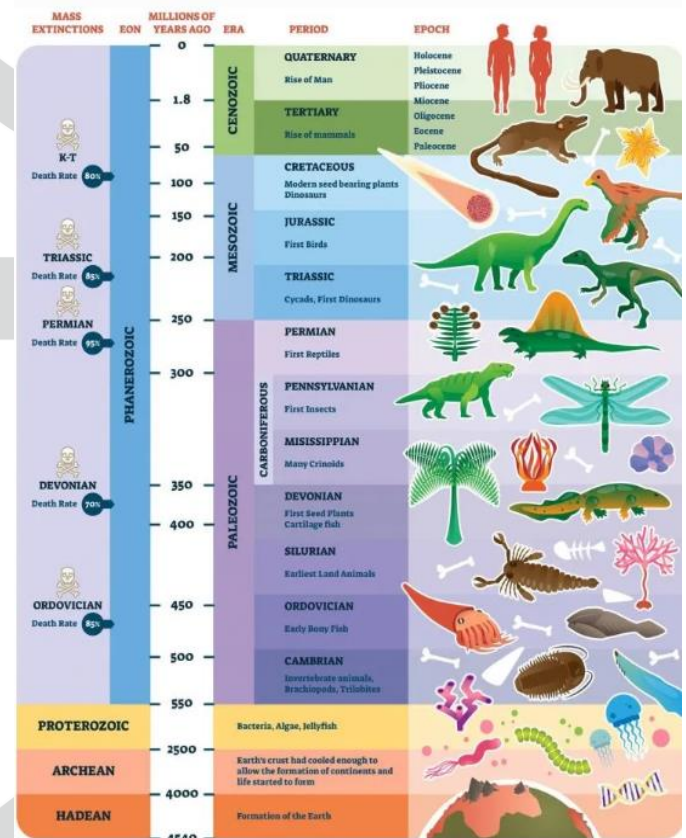
- Coined in 2000 by Paul Crutzen and Eugene Stoermer.
- It represents the geological time interval when human impact caused significant changes to Earth's ecosystem, especially since the Industrial Revolution.
- Associated phenomena include global warming, sea-level rise, ocean acidification, and other detrimental environmental changes.

Geologists' Findings at Crawford Lake:

- Multiple signals suggest the beginning of the Anthropocene around 1950 when human activity significantly impacted the Earth.
- The presence of plutonium from nuclear weapon detonations indicates humanity's dominant influence on the planet.
- However, it is essential to note that this evidence doesn't definitively prove the advent of the Anthropocene epoch.

Conclusion:

The sediments at Crawford Lake in Canada's Ontario provide compelling evidence of the beginning of the Anthropocene epoch, characterized by profound changes to Earth's ecosystem due to human activities. Nevertheless, further research and consensus within the scientific community are required to officially establish this epoch in Earth's geological timeline.



The International Union of Geological Sciences (IUGS) - An Overview

- **Global Non-Governmental Organization:** The IUGS is a worldwide non-governmental organization with a primary goal of promoting and advancing the Earth sciences.
- **Coordination and Education:** Serving as the international coordinating body for professional geological research and education, the IUGS plays a crucial role in fostering collaboration and knowledge exchange in the field.
- **Established in 1961:** The IUGS was founded in 1961, and since then, it has been actively involved in supporting geological research and education initiatives globally.
- **Member of International Science Council:** As a member of the International Science Council (ISC), the IUGS collaborates with other international organizations to address global scientific challenges and promote sustainable development.

TATHASTU
Institute of Civil Services



SC'S VERDICT ON ED DIRECTOR'S TENURE: IMPACT ON INSTITUTIONAL INDEPENDENCE

GS II: Statutory, Regulatory Bodies

Source: [TH](#)

Timeline Leading to the Verdict:

- Mr. SK Mishra was appointed as the ED Director for a two-year term in 2018.
- In 2020, the appointment was amended retrospectively, extending the tenure to three years.
- In 2021, the SC directed the government to stop granting extensions to the ED Director.
- To address this, amendments were made to the Central Vigilance Commission Act and the Delhi Special Police Establishment Act, allowing up to three annual extensions for CBI and ED Directors through High-Level Committees.

The High-Level Committees:

- A five-member panel, including the Central Vigilance Commissioner and Vigilance Commissioners, recommended extensions for ED Directors.
- The CBI Director's extension recommendation required a High-Level Committee comprising the Prime Minister, Opposition Leader, and Chief Justice of India.

The Recent Verdict:

- The back-to-back extensions given to the ED Director in 2021 and 2022 were deemed illegal, as they lacked High-Level Committee recommendations.
- The court upheld the 2021 amendments, disagreeing with the notion of using extensions as a tool to exert government pressure on agencies.

Takeaways from the SC's Verdict:

- A setback for institutional independence, as the verdict allows the government to undermine agencies' autonomy.
- While the quashing of ED Director's extensions is welcomed, the rest of the verdict permits the government to weaken agency independence.



- Legislation can nullify the basis for a judgment but cannot invalidate a court directive.
- The government ignored the court's earlier observation to grant extensions only in rare and exceptional cases.

Conclusion:

- The court's endorsement of a tenure extension system that undermines agency independence raises concerns, especially amid suspicions of government agency misuse against political opponents. Upholding the autonomy of agencies is crucial for upholding the rule of law.

Enforcement Directorate (ED) - An Overview:

Mandate and Jurisdiction:

- ED is a multi-disciplinary organization responsible for investigating money laundering offenses and foreign exchange law violations.
- It operates **under the Department of Revenue, Ministry of Finance, Government of India.**

Establishment and Evolution:

- In 1956, an "Enforcement Unit" was established under the Department of Economic Affairs to handle violations of Exchange Control Laws.
- In 1957, it was renamed as the "Enforcement Directorate."
- In 1960, administrative control was transferred to the Department of Revenue, Ministry of Finance.

Enforcement Authority:

- ED enforces several key laws, including the Foreign Exchange Management Act, 1999 (FEMA), the Prevention of Money Laundering Act, 2002 (PMLA), and the Fugitive Economic Offenders Act, 2018 (FEOA).
- The **FEOA** aims to prevent economic offenders from evading Indian law by staying outside the country's jurisdiction.

Organizational Structure:

- The Directorate of Enforcement is headquartered in New Delhi, led by the Director of Enforcement.
- It has five regional offices in Mumbai, Chennai, Chandigarh, Kolkata, and Delhi, each headed by Special Directors of Enforcement.

TATHASTU

NATIONAL POLICY FOR RARE DISEASES 2021: PROVIDING SUPPORT FOR RARE DISEASES TREATMENT

GS II: Health

Source: [BS](#)

About the National Policy for Rare Diseases 2021:

- The policy's main **objective** is to reduce the high treatment costs for rare diseases through increased emphasis on indigenous research.
- Financial assistance of up to Rs. 20 lakhs is offered for one-time treatment.
- A crowd funding mechanism is introduced to aid in funding treatments.
- The policy establishes a registry of rare diseases to facilitate early detection.
- Rare diseases are categorized into three groups based on their treatment requirements.

National Policy for Rare Diseases 2021 approved



- Provides for financial support upto Rs 20L to individuals with certain rare diseases that require one-time treatment.
- Assistance to be extended to not just BPL families, but to about 40% of the population who are covered under Pradhan Mantri Jan Arogya Yojana
- The financial support will be provided under the umbrella scheme of Rastriya Arogya Nidhi & not PM-JAY

Rare Diseases - An Overview:

Prevalence and Treatment Availability:

- There are approximately 6,000-8,000 classified rare diseases, but only less than 5% of them have available therapies for treatment.
- Examples include **Lysosomal Storage Disorders (LSD)**, Pompe disease, cystic fibrosis, muscular dystrophy, spina bifida, and haemophilia.
- A vast majority, about 95%, of rare diseases lack approved treatments, leaving less than 1 in

10 patients with disease-specific remedies.

Genetic Origins and Prevalence:

- Around 80% of rare diseases are of genetic origin, making their management challenging.
- The prevalence of rare diseases varies across countries, affecting as few as 1 in 10,000 individuals to 6 per 10,000 people.
- A broad definition of 'rare disease' describes it as a health condition with low prevalence, impacting only a small number of individuals compared to more prevalent diseases in the general population. Many rare diseases are severe, chronic, and life-threatening.

Rare Diseases in India:

- India has an estimated 50-100 million individuals affected by rare diseases or disorders, with nearly 80% of these cases involving children.
- These rare conditions are a leading cause of not reaching adulthood due to high morbidity and mortality rates associated with life-threatening diseases.

Three Groups of Rare Diseases:

- **Group 1:** Rare disorders that can be treated with a one-time curative approach.
- **Group 2:** Diseases needing long-term or lifelong treatment with relatively lower costs, supported by documented benefits in literature and regular surveillance.
- **Group 3:** Diseases with available definitive treatment but challenges lie in patient selection for optimal benefits due to high costs and lifelong therapy.

Accessing Financial Assistance for Treatment:

- Patients residing nearby may approach the nearest Centre of Excellence for assessment and benefits.
- Eight Centers of Excellence (CoEs) have been identified for diagnosis, prevention, and treatment of rare diseases.
- CoEs will receive a one-time grant of up to Rs. 5 crore each for infrastructure development to support screening, tests, and treatment.

Recent GST Council Decision:

- Integrated Goods and Services Tax (IGST) on medicines and Food for Special Medical Purposes (FSMP) used for treating rare diseases under the National Policy for Rare Diseases, 2021, will be exempted when imported for personal use.

Prelims

Q. With reference to Ayushman Bharat Digital Mission, consider the following statements: (2022)

1. Private and public hospitals must adopt it.
2. As it aims to achieve universal, health coverage, every citizen of India should be part of it ultimately.
3. It has seamless portability across the country.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer: (d)