



Electoral Bonds

For Prelims: [Electoral Bonds](#), [Political Parties](#), [Representation of the People Act 1951](#)

For Mains: Effects of Electoral Bonds on the election process, Issues Arising Out of Design & Implementation of Policies

Source: [TH](#)

Why in News?

A recent report by the **Association of Democratic Reforms (ADR)** an Indian **Non-governmental Organization (NGO)** established in 1999 situated in New Delhi sheds light on the significant role played by **Electoral Bonds** as the primary **source of donations for political parties in India**.

- Between **2016-17 and 2021-22**, the seven **national parties** and 24 **regional parties** received a **total donation of ₹9,188.35 crore** from Electoral Bonds.
 - The report analyzed donations received from **anonymous Electoral Bonds, direct corporate donations, contributions from MPs/MLAs, meetings, morchas, and collection by party units**.

What are the Key Highlights of the ADR Report?

- **Analysis of Donations and Funding Sources:**
 - The highest donations from Electoral Bonds, totaling **₹3,438.8237 crore**, were received **in 2019-20, the year of the general elections**.
 - The year **2021-22, which witnessed 11 Assembly elections**, saw donations worth **₹2,664.2725 crore through Electoral Bonds**.
 - Out of the total donations of ₹16,437.635 crore received by the 31 political parties analyzed, **55.90% came from Electoral Bonds, 28.07% from the corporate sector, and 16.03% from other sources**.
- **National Parties:**
 - National parties experienced a **significant surge in Electoral Bond donations, witnessing a 743% increase between FY 2017-18 and FY 2021-22**.
 - In contrast, **corporate donations** to national parties **increased by only 48%** during the same period.
- **Regional Parties and Electoral Bond Contributions:**
 - Regional parties also witnessed a substantial proportion of their donations coming from Electoral Bonds.
- **Power-Biased Donations of Electoral Bond:**
 - BJP, as the party in power, secures the **highest donation among national political parties**. More than **52% of the BJP's total donations were sourced from Electoral Bonds, amounting to ₹5,271.9751 crore**.
 - The Congress secured the second-highest Electoral Bond donations, with ₹952.2955 crore (61.54% of its total donations), followed by the Trinamool Congress with ₹767.8876 crore (93.27%).

What are Electoral Bonds?

- **About:**
 - The electoral bonds system was introduced in 2017 by way of a Finance bill and it was implemented in 2018.
 - They serve as a means for individuals and entities to **make donations to registered political parties** while maintaining donor anonymity.
- **Features:**
 - [State Bank of India \(SBI\)](#) issues the bonds in denominations of **Rs 1,000, Rs 10,000, Rs 1 lakh, Rs 10 lakh, and Rs 1 crore.**
 - **Payable to the bearer on demand and interest-free.**
 - Purchased by **Indian citizens or entities established in India.**
 - Can be bought **individually or jointly with other individuals.**
 - **Valid for 15 calendar days from the date of issue.**
- **Authorized Issuer:**
 - **State Bank of India (SBI)** is the authorized issuer.
 - Electoral Bonds are issued through **designated SBI branches.**
- **Eligibility of Political Parties:**
 - Only the political parties registered under Section 29A of the [Representation of the People Act, 1951](#) and have **secured not less than 1% of the votes polled** in the last general election to the [House of the People](#) or the **Legislative Assembly**, are eligible to receive electoral bonds.
- **Purchase and Encashment:**
 - **Electoral Bonds can be purchased digitally or through cheques.**
 - Encashment only through an authorized bank account of the political party.
- **Transparency and Accountability:**
 - Parties must disclose their **bank account with the [Election Commission of India \(ECI\).](#)**
 - Donations are made through banking channels, ensuring transparency.
 - Political parties are **obligated to explain the utilization of the funds received.**
- **Benefits:**
 - Enhanced **transparency in political party funding.**
 - **Accountability** in disclosing donation utilization.
 - **Discouragement of cash transactions.**
 - Preservation of **donor anonymity.**
- **Challenges:**
 - Electoral bonds are donations to political parties that hide the identity of the donors and recipients. They may compromise the **right to know**, which is part of the **right to freedom of expression under Article 19** of the [Constitution](#).
 - Anonymity may be compromised by government access to donor data. This implies that the **government in power can leverage this information and disrupt free and fair elections.**
 - Potential for unauthorized donations violating regulations.
 - Risk of crony capitalism and infusion of black money.
 - Crony Capitalism is an economic system characterized by close, mutually advantageous relationships between business leaders and government officials.
 - Loopholes regarding transparency for corporate entities and donation limits.
 - As per **Companies Act 2013**, a company can make a political contribution only if its **net average profit of three preceding financial years is at 7.5%**. The removal of this clause has **raised concerns of black money in political funding through shell companies.**

Way Forward

- Implement measures to **enhance transparency** in the Electoral Bond Scheme.
- Enforce **stricter regulations for political parties to disclose and** let the **ECI examine the donation** and make observation regarding both bonds and expenditure.
- Identify and **rectify loopholes in the Electoral Bonds** to prevent potential misuse, violation of donation limits, and risks such as crony capitalism and black money infusion.
- Continuously monitor the Electoral Bond Scheme through judicial scrutiny, periodic review, and

public engagement to address emerging concerns, adapt to changing landscapes, and ensure a more inclusive decision-making process

Anthropocene Epoch

For Prelims: Anthropocene Epoch, Anthropocene Working Group, GSSP, [Holocene Era](#), Geological Timescale.

For Mains: Anthropocene Epoch.

Source: [DTE](#)

Why in News?

Recently, the Anthropocene Working Group (AWG) has proposed that the **Anthropocene**, a new geological epoch characterized by significant human impact on Earth's systems, **began in 1950**.

- The AWG is an interdisciplinary research group dedicated to the investigation of the Anthropocene.
- If the proposal wins the necessary majority support, the **International Union of Geological Sciences** could officially ratify the new **Global boundary Stratotype Section and Point (GSSP) in August 2024**.

Note: The GSSP is a designated geological reference point that marks the boundary between **two geological time units**. It serves as an internationally agreed-upon standard for defining and **correlating different periods in Earth's history**. GSSPs are crucial for establishing the boundaries of epochs, ages, and other divisions within the geologic time scale.

What is the Background?

- The starting date of Anthropocene is supported by evidence **from Crawford Lake near Toronto, Canada**, which contains traces of the **radioactive element plutonium**.
- Around the year 1950, there was a **notable increase in the concentration of plutonium particles**. This significant change serves as a **clear indication of human impact and**, consequently, provides **evidence of the Anthropocene era**.
- The research findings of Crawford Lake provided strong evidence for the AWG's hypothesis that the unprecedented increase in industrial and socioeconomic activity of the Great Acceleration around the mid-twentieth century **has caused alterations to the Earth System on a scale that terminated ~11,700 years** of largely stable **Holocene conditions** and marks the beginning of a new Earth epoch.

What is the Anthropocene?

- The Anthropocene epoch as a term was first **coined by Nobel Prize-winning chemist Paul Crutzen** and biology **professor Eugene Stoermer in 2000** to denote the present geological time interval, in which the **Earth's ecosystem has gone through radical changes** due to human impact, especially since the onset of the [Industrial Revolution](#).
- There are numerous phenomena associated with this epoch, such as [Global Warming](#), [Sea-Level](#)

[Rise](#), [Ocean Acidification](#), mass-scale soil erosion, the advent of deadly [Heat Waves](#), deterioration of the biosphere and other detrimental changes in the environment.

What is the Holocene Epoch?

- The Holocene is the **current geological epoch, which began approximately 11,700** years ago at the end of the last major ice age.
- It is characterized by a relatively **stable and warm climate**, as well as the development of human civilization.
- The Holocene follows the **Pleistocene epoch and is part of the larger Quaternary period.**
- During the Holocene, Earth's climate experienced fluctuations, but overall, it has been a period of **relatively milder and more stable conditions compared** to the preceding ice age. The retreat of glaciers and the rise in global temperatures allowed for the expansion of forests, grasslands, and diverse ecosystems.

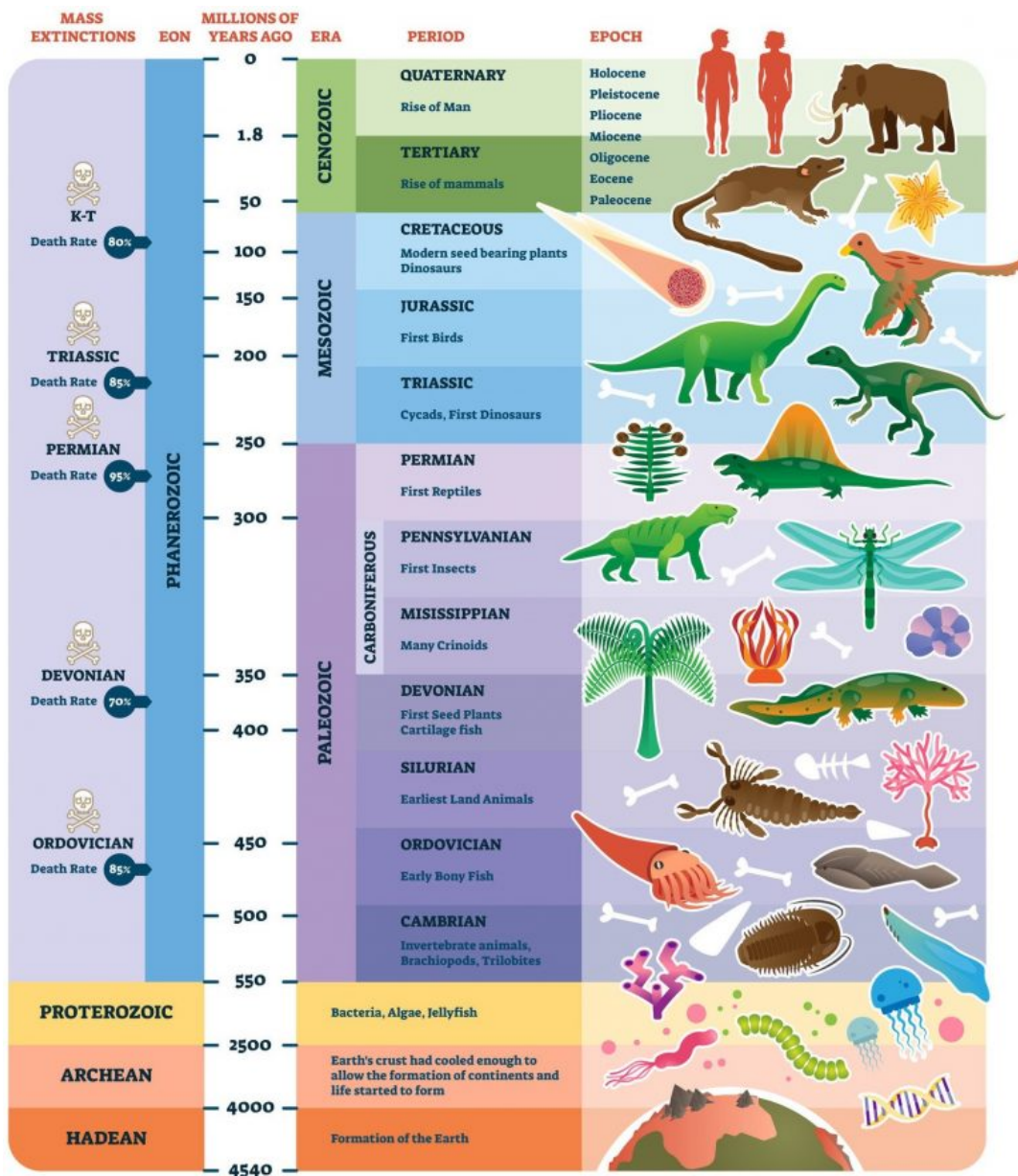
What is the Geological Time Scale?

- Geologists divide the **4.6-billion-year existence of Earth into slices of time** such as Eon, Era, System/Period, Series/Epoch, and Stage/Age.
- Eons are divided into **Eras, Eras into Periods, Periods into Epochs, and Epochs into Ages.**

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- Each slice corresponds to **significant happenings** - such as the break-up of continents, dramatic shifts in climate, and even the emergence of particular types of animals and plant life.



What is the International Union of Geological Science?

- The International Union of Geological Sciences (IUGS) is a global non-governmental organization that **aims to promote and advance the Earth sciences**. It serves as the international coordinating body for professional geological research and education.
- The IUGS was founded in **1961** and is a member of the **International Science Council (ISC)**.

National Human Rights Commission and UN Human Rights Council

For Prelims: [National Human Rights Commission](#), [UN Human Rights Council](#)

For Mains: Role and functions of the National Human Rights Commission (NHRC), Significance of the

[Source: TH](#)

Why in News?

Recently, the [National Human Rights Commission \(NHRC\)](#) has called for an action taken report from the Odisha government regarding the Balasore train accident.

- Simultaneously, **India recently voted in favor** of a draft resolution tabled in the [United Nations Human Rights Council](#), condemning and strongly rejecting acts of desecration of the Holy Quran.
- The draft resolution, titled '**Countering religious hatred constituting incitement to discrimination, hostility or violence**,' gained support from multiple nations, including **Bangladesh, China, Cuba, Malaysia, Pakistan, Qatar, Ukraine, and the UAE**. The resolution emphasizes the **condemnation of acts of religious hatred and calls for accountability** according to international human rights law.

What is the National Human Rights Commission (NHRC)?

- **About:**
 - Ensures protection of rights **related to life, liberty, equality, and dignity of individuals**.
 - Rights guaranteed by the **Indian Constitution and international covenants enforceable by Indian courts**.
- **Establishment:**
 - Established on **October 12, 1993**, under the Protection of [Human Rights Act \(PHRA\), 1993](#).
 - Amended by the **Protection of Human Rights (Amendment) Act, 2006**, and [Human Rights \(Amendment\) Act, 2019](#).
 - Established in conformity with the **Paris Principles**, adopted for promoting and protecting human rights.
- **Composition:**
 - The Commission consists of a **chairperson, five full-time Members and seven deemed Members**.
 - Chairman is a former [Chief Justice of India](#) or a [Supreme Court judge](#).
- **Appointment and Tenure:**
 - Chairman and members appointed by the [President](#) on the recommendations of a **six-member committee**.
 - Committee consists of the Prime Minister, Speaker of the Lok Sabha, Deputy Chairman of the Rajya Sabha, leaders of the Opposition in both Houses of Parliament, and the Union Home Minister.
 - Chairman and members hold office **for a term of three years or until they reach the age of 70**.
- **Role and Function:**
 - Possesses powers of a **civil court with judicial proceedings**.
 - Empowered to utilize services of central or state government officers or investigation agencies for investigating human rights violations.
 - Can investigate matters within **one year of their occurrence**.
 - Functions are primarily recommendatory in nature.
- **Limitations:**
 - The Commission cannot inquire into **any matter after one year from the date** of the alleged human rights violation.
 - Limited jurisdiction in cases of human rights violations by armed forces.
 - Lacks authority to act in cases of human rights violations by private parties

What is the United Nations Human Rights Council?

▪ About:

- An **inter-governmental body** within the [United Nations](#) responsible for promoting and protecting **human rights worldwide**.
- Established in 2006 by the **United Nations General Assembly**, replacing the former **United Nations Commission on Human Rights**.
- The Office of the High Commissioner for Human Rights (OHCHR) serves as the Secretariat and is based in **Geneva, Switzerland**.

▪ Membership:

- It consists of **47 United Nations Member States** elected by the UN General Assembly.
- Membership based on equitable geographical distribution, with seats allocated to different regions.
- Members **serve for three-year terms** and are not eligible for immediate re-election after two consecutive terms.

▪ Procedures and Mechanisms:

- [Universal Periodic Review \(UPR\)](#) assesses human rights situations in all UN Member States.
- The Advisory Committee provides expertise and advice on thematic human rights issues.
- Complaint Procedure allows individuals and organizations to bring human rights violations to the Council's attention.
- UN Special Procedures monitor and report on specific thematic issues or human rights situations in countries.

▪ Issues:

- The composition of membership raises concerns, as some countries accused of human rights abuses have been included.
- Disproportionate focus on certain countries, such as Israel, has been criticized.

▪ India's involvement:

- In 2020, **India's National Human Rights Commission** submitted its as a part of the third round of the **Universal Periodic Review (UPR)** process.
- India was elected to the Council for a **period of three years beginning 1st January 2019**.

UPSC Civil Services Examination, Previous Year Questions (PYQs)

Prelims:

Q. Other than the Fundamental Rights, which of the following parts of the Constitution of India reflect/reflects the principles and provisions of the Universal Declaration of Human Rights (1948)? (2020)

1. Preamble
2. Directive Principles of State Policy
3. Fundamental Duties

Select the correct answer using the code given below:

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

Ans: (d)

Q. Consider the following: (2011)

1. Right to education
2. Right to equal access to public service
3. Right to food.

Which of the above is/are Human Right/Human Rights under “Universal Declaration of Human Rights”?

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

Ans: (d)

Welfare Schemes and Brain Development

For Prelims: Hippocampus, Anti-Poverty Policies

For Mains: Relationship between poverty and brain development, Importance of investments in social safety net programs

Source: [TH](#)

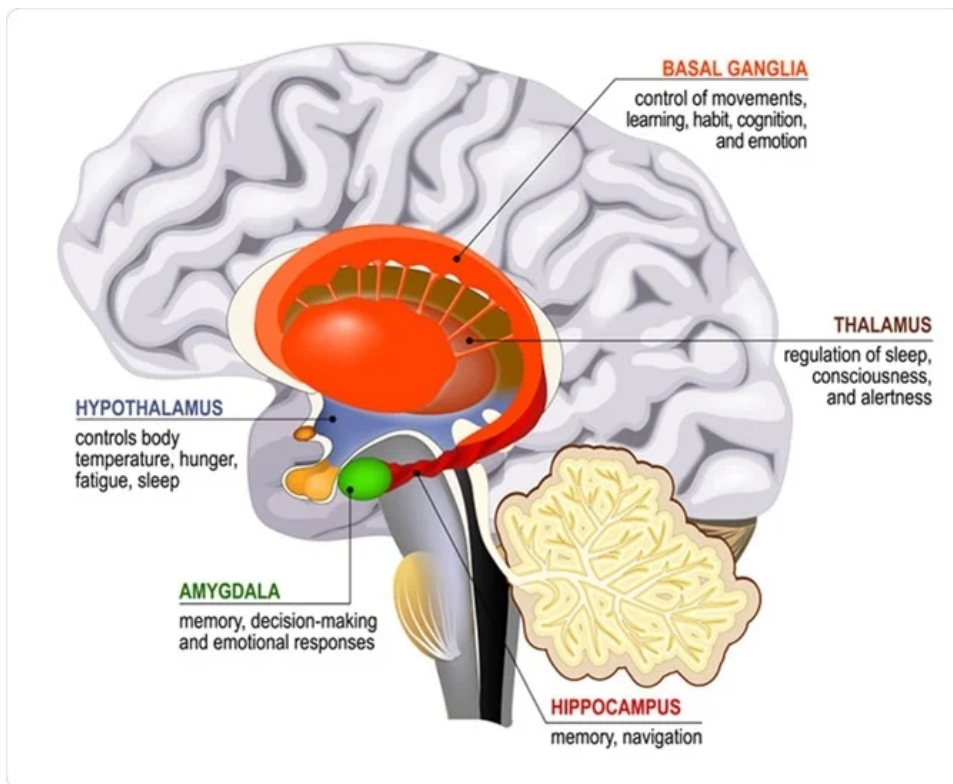
Why in News?

Recently, a study published in the *journal Nature* has shed light on the **impact of [welfare schemes](#) on brain development**, particularly in children from **low-income families**.

- The study, based on **brain scans of over 10,000 children aged 9-11** from **17 U.S. states**, aimed to explore the **relationship between [poverty](#) and brain development** and the role of anti-poverty policies in mitigating its effects.

What are the Key Highlights of the Study?

- **Poverty's Effect on Brain Development:**
 - Previous studies have consistently demonstrated that **growing up in low-income families** can **adversely affect brain development** and **cognitive abilities**.
 - In 2015, three studies reported that human children and young adults growing up in low-income families had **lower cortical volume and did relatively poorly in tests for academic performance**. The cortex is the outer layer of the brain.
 - Children from low-income families showed a higher risk of having a smaller **hippocampus**, a **structure crucial for learning and memory**.



▪ Impact of Anti-Poverty Policies:

- Generous anti-poverty policies were found to **substantially lower the risk of a smaller hippocampus** in children from low-income families.
- The **size of the hippocampus correlated positively** with family **socioeconomic status**.
- Researchers found a significant three-way interaction between **family income, cost of living, and cash assistance programs** in predicting hippocampal volume.
 - In **low-income households** residing in **high-cost-of-living states**, and **received generous cash benefits**, their hippocampal volumes were, on average, **34% larger** than those who lived in **low-income households in states with a relatively higher cost of living and lower cash benefits**.

▪ Welfare Schemes and Mitigating Biological Effects:

- **Access to more financial resources** through welfare schemes **can shield families from chronic stressors** associated with low income, potentially influencing hippocampal development.
- Anti-poverty policies can **reduce stress levels** and allow families to make decisions that lead to decreased stress, such as working fewer hours.

▪ Future Implications and Limitations:

- **Longitudinal Study:**
 - The researchers plan to examine how **policy changes since the data collection period have influenced the mental health and brain development trajectories** of the participants.
 - Monitoring the **long-term impact of policy changes** can provide valuable insights into the effectiveness of anti-poverty measures.
- **Addressing Socioeconomic Disparities:**
 - The study highlights the importance of **investments in social safety net programs** to address socioeconomic disparities in **neurodevelopment**.
 - Such programs can potentially **lower the costs associated with mental health, education, and economic challenges** resulting from socioeconomic inequalities.

What are the Major Poverty Alleviation Programs in India?

- [Integrated Rural Development Programme \(IRDP\)](#)
- [Pradhan Mantri Awaas Yojana](#)

- [National Old Age Pension Scheme](#)
- [Mahatma Gandhi National Rural Employment Guarantee Act \(MGNREGA\) 2005](#)
- [Deendayal Antyodaya Yojana - National Rural Livelihood Mission \(DAY-NRLM\)](#)
- [National Urban Livelihood Mission](#)
- [Pradhan Mantri Kaushal Vikas Yojana](#)
- [Pradhan Mantri Jan Dhan Yojana](#)

UPSC Civil Services Examination, Previous Year Questions (PYQs)

Prelims

Q. In a given year in India, official poverty lines are higher in some States than in others because (2019)

- (a) poverty rates vary from State to State
- (b) price levels vary from State to State
- (c) Gross State Product varies from State to State
- (d) quality of public distribution varies from State to State

Ans: (b)

Exp:

- In India, poverty is estimated at absolute level or the minimum money required for subsistence. Presently, the poverty line is defined as the minimum money required for maintaining a per capita caloric intake of 2,100 calories in an urban area and 2,400 calories in a rural area.
- Thus, according to the Poverty Estimates (2011-12) of the Planning Commission, the poverty lines vary from State to State because the price of per capita goods varies due to interstate price differentials.
- **Therefore, option (b) is the correct answer.**

Mains

Q. "The incidence and intensity of poverty are more important in determining poverty based on income alone". In this context analyse the latest United Nations Multidimensional Poverty Index Report. **(2020)**

Siachen Glacier

For Prelims: [Siachen Glacier](#), [Geological Survey of India \(GSI\)](#), [Operation Megh Doot in 1984](#), Karachi Ceasefire Agreement, [Simla Agreement](#).

For Mains: Siachen Glacier.

[Source: TH](#)

Why in News?

NJ 9842 is the known boundary between India and Pakistan, but fewer know about **5Q 131 05 084, the number** assigned to the [Siachen Glacier](#) by the [Geological Survey of India \(GSI\)](#), a disputed area between

the two countries since 1984.

- The point NJ 9842 as it is the last mutually demarcated point between India and Pakistan as per the Karachi ceasefire agreement of 1949 and also the point where the [Line of Control](#) of the Simla Agreement ends.

What is the First GSI Survey of Siachen Glacier?

- **GSI Survey:**
 - The first GSI survey of the Siachen Glacier was conducted in June 1958 by an Assistant Geologist V. K. Raina, with the **GSI**. The survey aimed to study the **Himalayan glacier systems as part of the International Geophysical Year activities**.
 - The GSI team spent nearly three months camping at the base of the glacier, conducting various studies and establishing survey points.
- **Significance for India:**
 - The survey holds significance for India as it marks the **official Indian exploration of the Siachen Glacier**, an area that would later become a bone of contention between India and Pakistan.
 - The peaceful environs surveyed in 1958 turned into a conflict zone when India **launched Operation Meghdoot in 1984** to secure its presence in the region.
 - The GSI survey provides **historical evidence of India's early knowledge and scientific engagement with the glacier**, countering any claims of Pakistani control since the beginning.
- **Pakistan's Claims:**
 - Initially, during the GSI survey in 1958, Pakistan **did not raise any protests or objections** to the Indian presence on the glacier. This could be attributed to both countries abiding by the terms of the **Karachi ceasefire agreement of 1949**, which had delineated the ceasefire line up to the glaciers and called for mutual demarcation.
 - However, Pakistan's lack of interest in scientific visits and explorations in the region might have also played a role.
 - It was only 25 years later, in August 1983, that **Pakistan unilaterally extended the [Line of Control \(LOC\)](#) from NJ 9842 till the [Karakoram Pass](#)** in its protest notes, challenging the status quo.
 - This move raised concerns in India, **leading to the pre-emptive occupation of the strategic Saltoro Heights** by Indian forces in April 1984.
 - Pakistan's claims and actions since then have been based on differing interpretations of **historical agreements, such as the Karachi ceasefire agreement** and the [Simla Agreement](#).

What is Siachen Glacier?

- The Siachen Glacier is located in the **Eastern Karakoram range in the Himalayas**, just northeast of **Point NJ9842 where the LOC** between India and Pakistan ends.
 - The entire Siachen Glacier, with all major passes, has been under the administration of India since **1984 (Operation Meghdoot)**.
- The Siachen Glacier is **positioned from northwest to southeast**. It originates at the base of the Indira Col West, a col (low point) on the Indira Ridge, **at an altitude of 6,115 metres, and it descends to an altitude of 3,570 metres**.
- It is the Second-Longest glacier in the World's Non-Polar areas after Fedchenko Glacier in Tajikistan.
- The Siachen Glacier lies **immediately south of the great drainage divide** that separates the **Eurasian Plate from the Indian subcontinent** in the extensively glaciated portion of the **Karakoram sometimes called the "Third Pole"**.
- Nubra river originates from Siachen Glacier.
- The Siachen Glacier is the **world's highest battlefield**.



UPSC Civil Services Examination, Previous Year Questions (PYQs)

Q. Siachen Glacier is situated to the (2020)

- (a) East of Aksai Chin
- (b) East of Leh
- (c) North of Gilgit
- (d) North of Nubra Valley

Ans: (d)

India Mobile Congress 2023

For Prelims: India Mobile Congress (IMC), [Atma Nirbhar Bharat initiative](#), [Cybersecurity](#), [Artificial Intelligence](#)

For Mains: Significance of India Mobile Congress (IMC) in India's Digital Transformation

Source: [PIB](#)

Why in News?

Recently, the **7th edition of India Mobile Congress (IMC) 2023** was inaugurated by the **Ministry for Communications and Cellular Operators Association of India (COAI)**.

- The **theme of IMC 2023** is "**Global Digital Innovation**," seeks to establish India as a leading [technology developer](#), [telecom manufacturer](#) and **exporter**.

What is India Mobile Congress (IMC) 2023?

- **India Mobile Congress (IMC) 2023** is a prominent **annual event** that showcases the latest

advancements and innovations in the mobile and digital technology sector.

- It serves as a platform for **industry leaders, policymakers, technology enthusiasts, and stakeholders** to come together and discuss the future of the **digital landscape**.

How IMC is Promoting Technology and Societal Welfare?

- India has witnessed remarkable progress in several aspects of the telecom sector, such as the [Atma Nirbhar Bharat initiative](#), the rollout of [5G technology](#), and the development of a roadmap for 6G.
- **Fostering Innovation and Indigenous Technology:**
 - **IMC 2023** focuses on **nurturing an innovative ecosystem** by facilitating collaborations between **industry leaders, startups, and academia**.
 - The involvement of at least **100 universities** and the inclusion of students in the event provide a platform for **knowledge-sharing and encourages young minds** to contribute to [digital transformation](#).
 - The event emphasizes the development of **indigenous technologies, including telecom and semiconductor manufacturing**, to support the vision of an **Atmanirbhar Bharat (Self-Reliant India)**.
- **IMC's Impact on India's Technological Advancement:**
 - IMC has played a pivotal role in India's **technological transformation**, contributing to the country's **rapid 5G rollout, Atmanirbhar Bharat initiative**, and the **roadmap for 6G technology**.
- **Expanding Horizons:**
 - **IMC** has evolved beyond its initial focus on **telecom**, encompassing various industries such as [drone technology](#), [power electronics](#), [AI innovations](#), [deep tech](#), [satcom](#), [mobile manufacturing](#), [cybersecurity](#), [data center innovation](#), and more.
 - By broadening its scope, IMC fosters collaboration across sectors, facilitating technological advancements that benefit [agriculture](#), [education](#), [logistics](#), [transportation](#), and [animal husbandry](#).
- **Ensuring Cybersecurity:**
 - Recognizing the importance of cybersecurity, **IMC 2023** dedicates a section to address **consumer-facing cyber threats**, aiming to enhance **organizational** and [public safety](#) from **cyber frauds**.
 - By creating **awareness** and **discussing effective cybersecurity measures**, the event contributes to **safeguarding digital infrastructure** and **privacy**.
- **Virtual Exhibition and Outreach:**
 - To ensure broader accessibility and participation, **IMC 2023** introduces the **concept of a virtual exhibition, enabling individuals** from different parts of the country to engage with the event remotely.
 - This expansion reflects the event's commitment to reaching diverse audiences and **promoting digital innovation** on a national scale.
- **Aspire: Igniting Future Entrepreneurship:**
 - It introduces **Aspire**, a dedicated **start-up event** aimed at fostering entrepreneurship among young innovators in the **telecom** and **digital domains**.
 - With sections like an **Investor zone, pitching zone, workshop zone, and networking zone**, Aspire aims to create an **unparalleled experience** and accelerate the growth of aspiring entrepreneurs.

Conclusion:

- India Mobile Congress 2023 signifies the crucial role played by India in the worldwide digital revolution. With its emphasis on global digital innovation, the development of indigenous technology, and cross-industry collaboration, IMC acts as a catalyst for India's technological progress.
- By fostering innovation, broadening its scope, ensuring cybersecurity, promoting global collaboration, and nurturing entrepreneurship, IMC reinforces India's leadership in the technology sector and propels the nation towards a future empowered by digital advancements.

UPSC Civil Services Examination, Previous Year Questions (PYQs)

Mains

Q:1: "The emergence of the Fourth Industrial Revolution (Digital Revolution) has initiated e-Governance as an integral part of government". Discuss. (2020)

New Evidence of Phosphine in Clouds of Venus

[Source:Mint](#)

Why in News?

Scientists detected phosphine at deeper level in Venus' atmosphere than before **using the James Clark Maxwell Telescope (JCMT) at Mauna Kea Observatory, Hawaii.**

- Scientists in **2020** detected the presence of **phosphine gas** in the clouds of **Venus**.
- That discovery led to much debate and excitement about the presence of life on **Venus** given that **phosphine** is a molecule associated with biological activity on **Earth**.

Does life exist on Venus?

- **Phosphine** on **Earth** is known to be synthesized by **bacteria** thriving in environments with extremely **low levels of oxygen**.
- **Phosphine** has been detected in the deeper layers of **Venus' clouds**.
- **Scientists** have acknowledged that while the **detection of phosphine** could potentially serve as a **biosignature**, it could also be attributed to other mechanisms that are currently not completely comprehended.
- A prevalent perspective suggests that **phosphine** could potentially be produced by introducing phosphorus-containing rocks into the **upper atmosphere**, subjecting them to erosion through processes involving **water, acid**, and other factors, resulting in the formation of **phosphine gas**.

What is Phosphine (PH₃)?

- It is a **phosphorus atom** with **three hydrogen atoms** attached and is highly **toxic** to people.
- On **rocky planets** such as Venus and **Earth**, **phosphine** can only be made by life whether **human** or **microbe**.
- **Phosphine** is made naturally by some species of **anaerobic bacteria**, organisms that live in the oxygen-starved environments of **landfills, marshlands, and even animal guts**.
- To produce **phosphine**, **Earth bacteria** take up **phosphate** from **minerals or biological material** and add **hydrogen**.
- **Phosphine also arises non-biologically in certain industrial settings**.
- Used as a **chemical weapon** during **World War I**.
- **Phosphine** is still manufactured as an **agricultural fumigant**, is used in the **semiconductor industry**, and is a by-product of **meth labs**.

What are the Key Facts About Venus?

- **Venus** is **Earth's closest planetary** neighbor. It is also known as **earth's twin**.
- Similar in structure but slightly smaller than **Earth**, it is the **second planet** from the **Sun**.
- **Venus** is wrapped in a **thick and toxic atmosphere** that traps in heat.
- Surface temperatures reach a scorching **880 degrees Fahrenheit**, hot enough to melt **lead**. It is

the hottest planet in the **solar system**.

- Highly dense, **65 miles of cloud** and **haze**, puts **atmospheric pressure** more than **90 times** what's felt on **Earth's surface**.
 - Also, the planet's atmosphere is primarily suffocating **carbon dioxide** and **sulfuric acid clouds**.
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Rising Water Levels in the Yamuna River

[Source: TH](#)

Why in News?

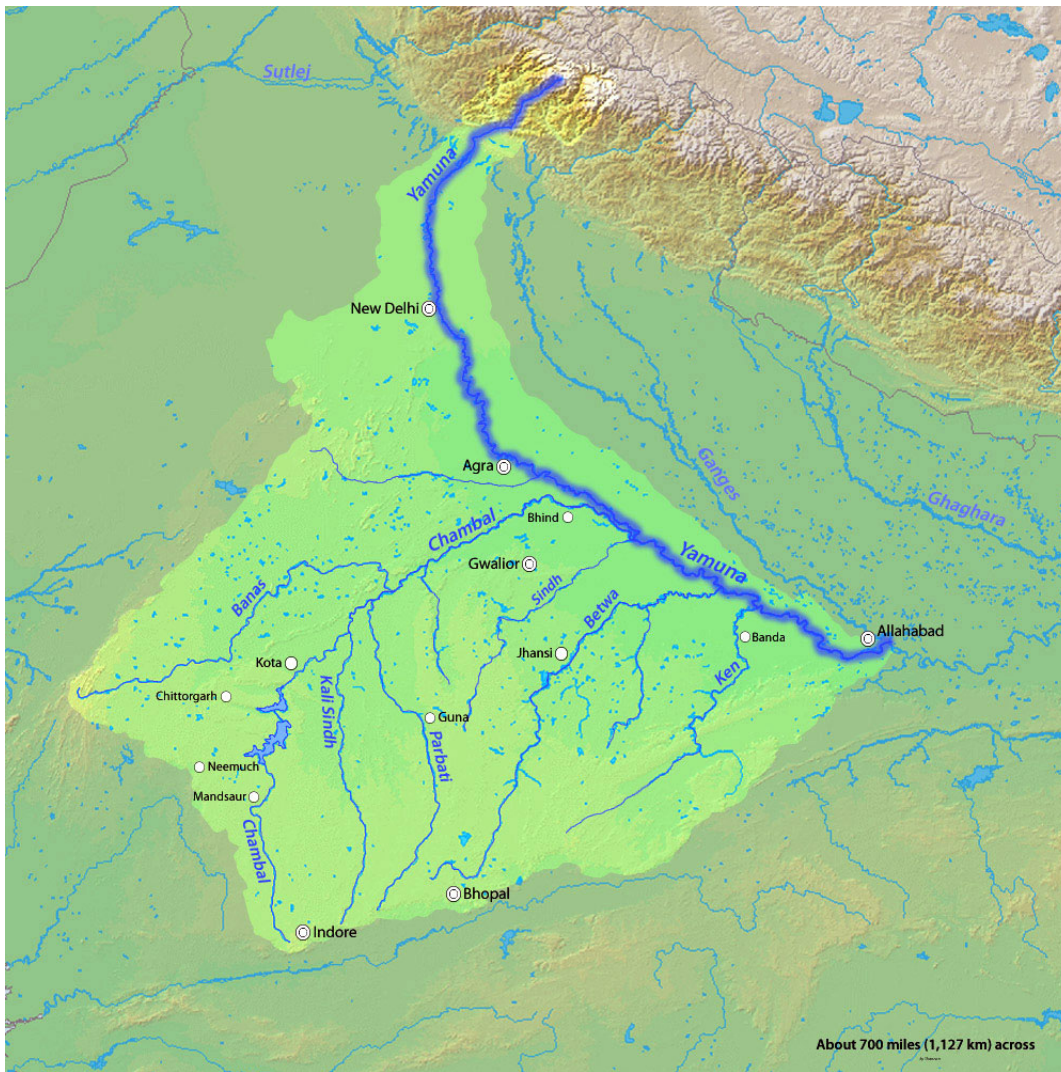
Delhi is currently experiencing a severe **waterlogging crisis due to the rising water levels of the Yamuna River**. The water level has surged to **208.13 meters**, marking the highest recorded level since **1963**.

What is the Cause and Impact of Increasing Water Level of Yamuna?

- **Cause:**
 - Recent **heavy rainfall** in upstream states like **Himachal Pradesh, Uttarakhand, Haryana, and Punjab** are believed to be the main cause of the rising Yamuna River level.
 - The **Hathnikund barrage in Haryana**, responsible for **regulating the flow of the Yamuna into Delhi**, has released a substantial amount of water due to the rainfall.
- **Impact:**
 - The increased water level of the Yamuna has **resulted in flooding in low-lying areas of Delhi**, affecting a significant number of people and disrupting transportation and water supply.
 - **Water supply in Delhi is also impacted as** Delhi government decided to cut down supply by **25%** following the **closure of three water treatment plants due to the rising level of the Yamuna**.

Yamuna River

- **About:** The Yamuna River is one of the major tributaries of the Ganges in Northern India.
 - It forms an integral part of the **Yamuna-Ganga Plain**, one of the world's most extensive alluvial plains.
- **Source:** It has its source in the **Yamunotri Glacier at an elevation of 6,387 meters** on the southwestern sides of **Banderpooch crests** in the lower **Himalayan ranges**.
- **Basin:** It meets the **Ganges at the Sangam (where Kumbh mela is held)** in Prayagraj, Uttar Pradesh after flowing through **Uttarakhand, Himachal Pradesh, Haryana and Delhi**.
- **Important Dam:** Lakhwar-Vyasi Dam (Uttarakhand), Tajewala Barrage Dam (Haryana) etc.
- **Important Tributaries:** Chambal, Sindh, Betwa and Ken.
- **Government Initiatives Related to Yamuna River:**
 - **Yamuna Action Plan**
 - **Delhi Government's Six-Point Action Plan to Clean Yamuna by February 2025**



Rapid Fire Current Affairs

MoD & FSSAI Promote Millets & Healthy Eating in Armed Forces

The **Ministry of Defence (MoD)** and the [Food Safety and Standards Authority of India \(FSSAI\)](#) have signed a **Memorandum of Understanding (MoU)** to promote the use of millets and healthy eating practices among the **armed forces**.

Millets are small-seeded annual grasses that are **rich in nutrients, drought-resistant, and suitable for semi-arid regions**. India is the largest producer of millets in the world, and contributes to 20% of global production. [India's Millet Revolution](#) is a movement that seeks to increase awareness of the **health and environmental benefits of millets**, promote traditional agricultural practices, and support small-scale farmers.

Read more: [Food Safety and Standards Authority of India \(FSSAI\)](#), [India's Millet Revolution](#)

Rural and Urban India Almost Equally Affected by PM 2.5

An analysis by **Climate Trends** revealed that **rural and urban areas in India experienced equally poor levels of ultrafine [particulate matter \(PM\) 2.5](#)** in 2022. This questions the **government's**

focus on urban areas for controlling [air pollution](#). The study also highlighted the higher impact of PM 2.5 on rural populations in terms of **reduced lifespan**. The **[National Clean Air Plan \(NCAP\)](#) primarily invested in urban areas**, neglecting rural regions without pollution monitoring or mitigation measures. Experts emphasize the need for a wider monitoring network and policies to address pollution in rural India.

PM 2.5 is an atmospheric particulate matter of diameter of fewer than **2.5 micrometres, which is around 3% the diameter of a human hair**. It causes respiratory problems and reduces visibility.

Read more: [Air Pollution in India & NCAP, particulate matter \(PM\) 2.5](#)

New saline-tolerant plant species found in Kutch



Gujarat Ecological Education and Research (GEER) Foundation, located in **Gandhinagar**, has made an exciting discovery. The researchers has identified a previously unknown species of **saltwort** named **Salsola oppositifolia Desfontainia**. This particular **saltwort** is a perennial shrub that thrives in **salty, dry to semi-dry habitats** within the **Kutch district**. This species belongs to the **Amaranthaceae family**. This species is **succulent shrub** that can grow one to two metres tall and have a smooth, cylindrical, woody base.

According to the recently published **Plant Discoveries 2022**, which was released in **June 2023**, a significant report states that the species **Salsola oppositifolia Desfontainia**, previously found in **Italy, Northern Africa, Palestine, Spain, and Western Sahara**, has been discovered in India for the first time. This discovery was made based on specimens collected from **Khadir Bet, located in the Kutch region of Gujarat**.

IFSCA and IIML-EIC Collaborate to Support Financial Innovation

A memorandum of understanding (MoU) has been signed between the **[International Financial Services Centers Authority \(IFSCA\)](#)** and **IIML-EIC (Enterprise Incubation Centre)** at the **Indian Institute of Management Lucknow (IIML)** to establish a collaborative framework between **IFSCA** and **IIML-EIC** to support and facilitate **FinTech** and **TechFin** entities.

IFSCA, as the **regulatory authority**, holds the responsibility for the development and regulation of **international financial services** within the **International Financial Services Centre (IFSC)**. This specialized financial jurisdiction is considered distinct from the rest of India. The IFSCA has been established in 2020 under the International Financial Services Centres Authority Act, 2019. It is **headquartered at GIFT City, Gandhinagar in Gujarat**

IIML-EIC is a not-for-profit organization, registered. It was established with an objective to nurture high-performance start-ups, especially in the fields of Big Data Analytics, Artificial Intelligence, etc.

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