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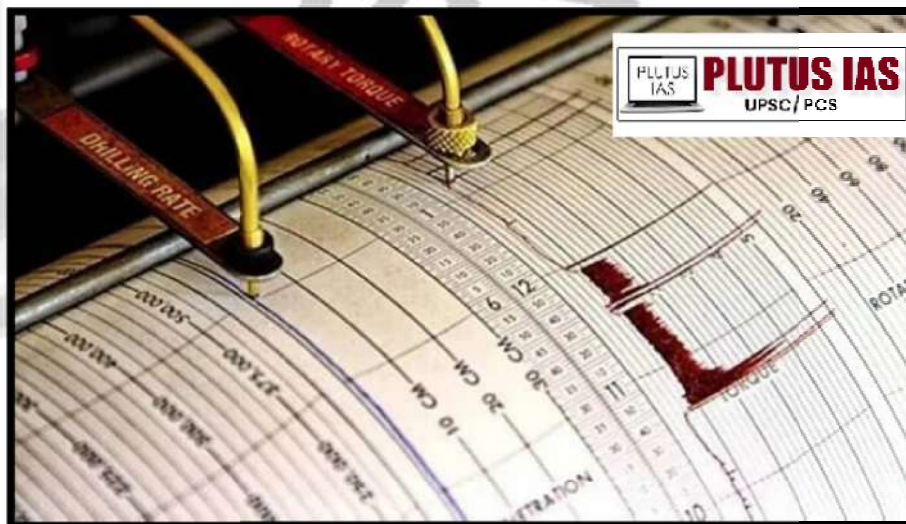


Date –20- February 2025

EARTHQUAKE RISK REDUCTION: CHALLENGES AND STRATEGIES

WHY IN THE NEWS?

Delhi was shaken by an earthquake of magnitude 4.0, originating near Dhaula Kuan, making it the strongest quake to strike the city in at least five years. Unlike most tremors that originate far from the capital, such as those from Afghanistan, this one had local origins, raising concerns about seismic activity closer to home. While no significant damage or injuries were reported, experts are asking why such tremors are occurring and what risks they pose to Delhi in the future. The rare event has sparked questions about the region's seismic vulnerability as experts analyze the potential for stronger quakes and the city's preparedness for future seismic events.



WHAT IS AN EARTHQUAKE?

An earthquake is the sudden shaking or movement of the Earth's surface caused by the release of energy from within the Earth's crust. This energy is typically stored when masses of rock are strained against one another, and when the rocks fracture or "slip," the stored energy is released in the form of seismic waves. These waves travel through the Earth, causing the ground to shake, sometimes violently. Earthquakes usually occur along fault lines, which are fractures in the Earth's crust where rocks on either side have moved

relative to one another. The movement and release of energy at these fault lines can cause significant ground shaking, damage to structures, and sometimes even tsunamis if the quake occurs underwater.

TYPE OF EARTHQUAKE

1. Shallow Earthquakes:

Depth: Occurs at depths of less than 70 kilometres (km).

Commonality: The most frequent type of earthquake.

Energy Release: Release about 75% of the total energy produced by earthquakes.

Damage: These are typically the most destructive to buildings and infrastructure because of their proximity to the Earth's surface.

2. Intermediate Earthquakes:

Depth: Occurs at depths between 70–300 km.

Alternate Name: Also known as mid-focus earthquakes.

Impact: While not as destructive as shallow earthquakes, they can still cause significant shaking, depending on the location.

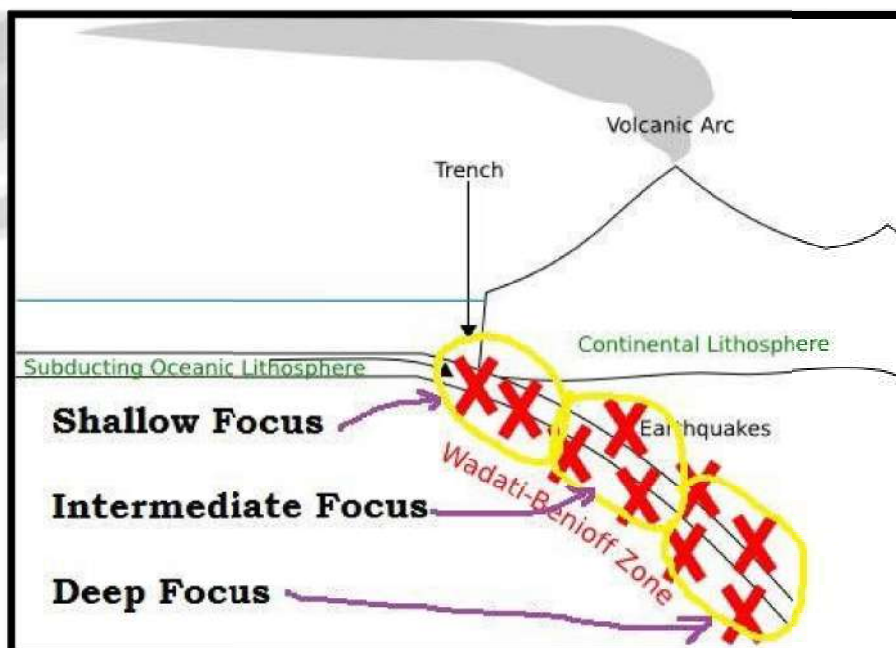
3. Deep Earthquakes:

Depth: Occurs at depths of 300–700 km.

Alternate Name: Also called deep-focus earthquakes.

Destructive Nature: These are rarely destructive due to their depth, as the seismic waves lose energy by the time they reach the surface.

Location: Typically happens in subduction zones where one tectonic plate is being forced beneath another.



EARTHQUAKES ZONE: MAPPING

The National Center for Seismology (NCS) monitors seismic activities in India, focusing on earthquake detection, early warning systems, and maintaining national seismological networks. It also conducts seismic hazard studies and post-earthquake field studies.

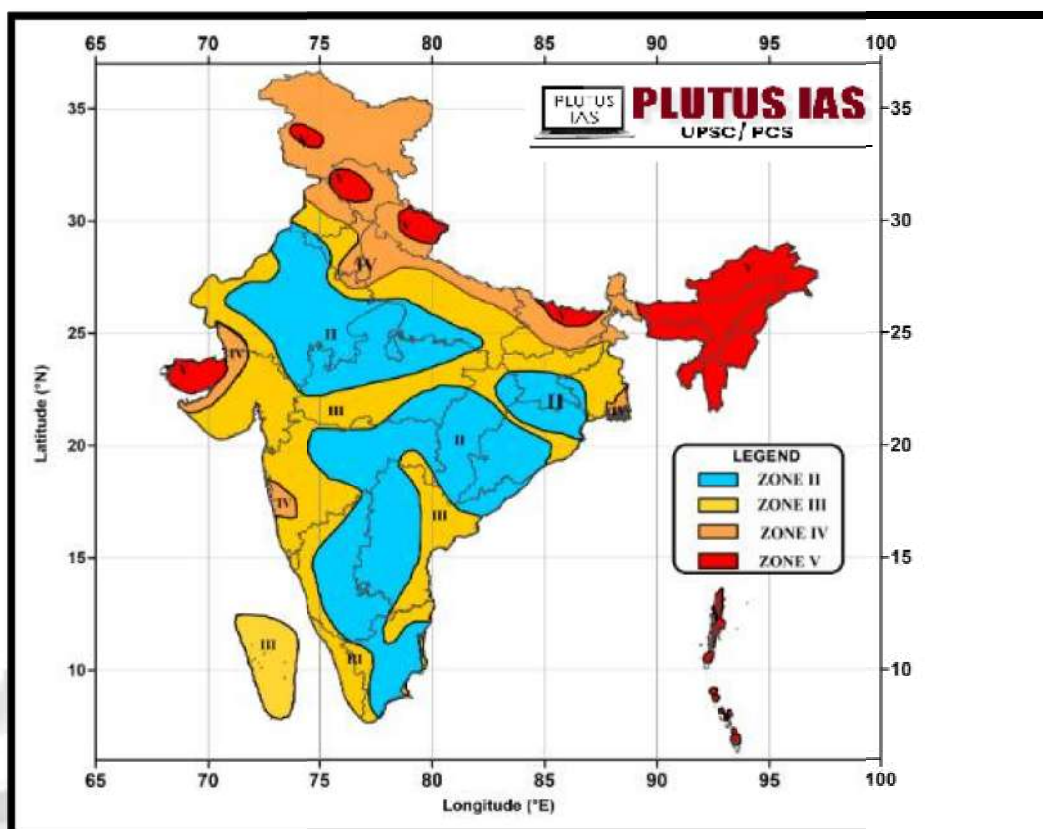
Zone 5: Highest risk (MSK IX+), with a zone factor of 0.36. Includes regions like Kashmir, the Himalayas, and the Andaman Islands.

Zone 4: High risk (MSK VIII), with a zone factor of 0.24. Includes Delhi, Jammu & Kashmir, and parts of Uttar Pradesh.

Zone 3: Moderate risk (MSK VII), with a zone factor of 0.16. Covers cities like Mumbai, Chennai, and Kolkata.

Zone 2: Low risk (MSK VI), with a zone factor of 0.10. Includes cities like Bangalore and Hyderabad.

Zone 1: No current areas classified, representing very low seismic risk, potentially covering stable regions like the Deccan Plateau.



WHAT ARE THE REASONS FOR THE RECENT DELHI EARTHQUAKE?

The recent earthquake in Delhi, with a magnitude of 4.0, was not caused by the collision of tectonic plates, according to the National Center for Seismology (NCS). While Delhi lies in Seismic Zone IV, which is prone to earthquakes, the specific cause of this event wasn't linked to a plate collision but rather to the local geological conditions.

Several factors contribute to the seismic activity in Delhi:

1. Tectonic Plate Movements: The Indian plate is colliding with the Eurasian plate, causing the region to experience seismic activity. This collision occurs along the Himalayan region and influences the seismicity in surrounding areas, including Delhi.

2. Delhi-Hardwar Ridge: The earthquake is thought to be associated with the Delhi-Hardwar Ridge, a major geological structure that extends beneath the alluvial plains of the Ganga Basin, coinciding with the Aravali Mountain belt. This ridge contributes to seismic activity around Delhi.

3. Local Faults and Geological Features: The region around Delhi has faults and geological structures that can cause smaller earthquakes due to the release of built-up energy. These localized movements do not necessarily involve major tectonic shifts but can still generate tremors.

NDMA GUIDELINE ON EARTHQUAKES:

1. Preventive Measures

Seismic Risk Assessment: Assess and identify vulnerable areas in earthquake-prone regions.

Earthquake-Resistant Construction: Ensure new buildings follow seismic safety codes (IS 1893:2002) and retrofit older buildings.

Zoning and Land Use: Avoid construction in high-risk zones and enforce stricter building codes.

Public Awareness: Educate the public about earthquake risks and safety protocols.

Emergency Plans: Develop preparedness and evacuation plans for communities and institutions.

Infrastructure Retrofit: Strengthen existing infrastructure to meet earthquake-resistant standards.

2. During the Earthquake

Drop, Cover, and Hold On: Drop to the ground, take cover under furniture, and hold on until the shaking stops.

Stay Indoors: Remain inside, away from windows and heavy objects.

Move to Open Areas: If outside, move to open areas away from buildings and power lines.

Use Stairs, Not Elevators: Evacuate using stairs, not elevators.

Stay Calm: Remain calm and avoid panic to ensure safety.

3. Post-Earthquake Measures

First Aid: Provide first aid to the injured and call for medical help.

Inspect Damage: Check for structural damage before re-entering buildings.

Prepare for Aftershocks: Be ready for possible aftershocks.

Follow Official Instructions: Listen to authorities for updates and instructions.

Coordinate Relief: Organize rescue and relief operations, provide shelter, and restore services.

Mental Health Support: Offer psychological support to survivors.

CONCLUSION

The recent 4.0 magnitude earthquake in Delhi has raised concerns about the region's seismic vulnerability. Although no significant damage or injuries were reported, the quake, originating locally near Dhaula Kuan, highlights the potential risks in an area that lies within Seismic Zone IV. Delhi's geological setting, including factors like the Delhi-Hardwar Ridge and local fault lines, can contribute to seismic activity. The National Center for Seismology (NCS) has assured that this event was not caused by a plate collision but was likely due to local geological conditions.

PRELIMS QUESTIONS:

Q. Which of the following statements are correct about Delhi's seismic activity?

1. Delhi is located in Seismic Zone IV, which indicates a high risk of earthquakes.
2. The recent earthquake in Delhi was caused by the collision of tectonic plates.
3. The Delhi-Hardwar Ridge contributes to seismic activity in the region.

Select the correct answer using the code given below:

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

Answer: C

MAINS QUESTIONS:

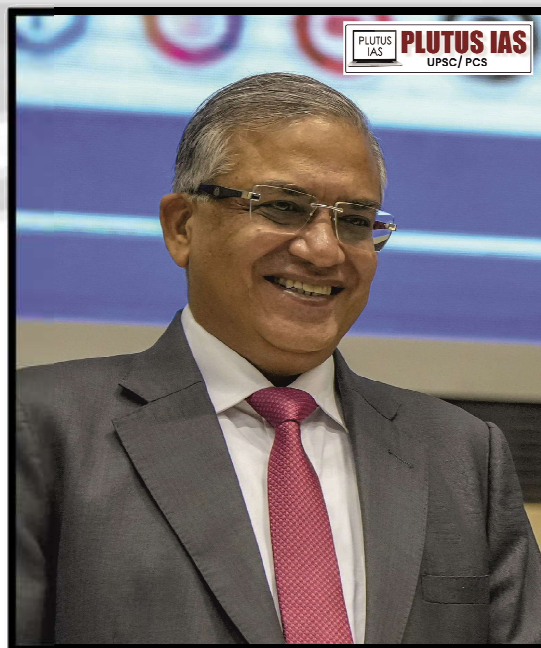
Q. Discuss the seismic risks faced by Delhi in light of the recent earthquake. What preventive measures should be taken to mitigate earthquake hazards in the region? (250 words, 15 marks)

Ritik singh

NEW ELECTION COMMISSION APPOINTMENT: A CLOSER LOOK AT THE ECI AND RECENT REFORMS

WHY IN THE NEWS:

The Election Commission of India (ECI) has gained attention due to recent developments around appointments, reforms, and the Election Commission (CEC and ECs) Act, 2023. The appointment of a new Chief Election Commissioner (CEC) has sparked debates over the independence and autonomy of the ECI, particularly ahead of the 2024-2025 general elections and state elections. Concerns have emerged regarding the Commission's ability to function impartially and without political interference while upholding its role in ensuring free, fair, and transparent elections across India.



CONSTITUTIONAL PROVISIONS RELATED TO THE ELECTION COMMISSION OF INDIA:

The Election Commission of India (ECI), an autonomous constitutional body, is responsible for conducting national and state elections, as outlined in Article 324 of the Indian Constitution. This article vests the authority to oversee elections with the President of India, based on the advice and supervision of the ECI. The Commission conducts elections to the Lok Sabha, Rajya Sabha, State Assemblies, and key offices like the President and Vice President. Additionally, it ensures compliance with the Election Code of Conduct and resolves electoral disputes. Initially comprising a Chief Election Commissioner (CEC) and two other Election Commissioners, the ECI's structure has evolved, with the 2023 reform legislation providing a clearer framework for the appointment and functioning of the CEC and ECs.

WHAT IS THE ECI AND THE ECI (CHIEF ELECTION COMMISSIONER AND ELECTION COMMISSIONERS) ACT 2023:

In 2023, the Indian Parliament passed the **Election Commission (Chief Election Commissioner and Election Commissioners) Act**, a significant reform aimed at addressing long-standing concerns about the ECI's functioning. The Act provides a more structured and transparent framework for the appointment of the Chief Election Commissioner (CEC) and other Election Commissioners (ECs). Under the new law, the selection process for the CEC and ECs is overseen by a **six-member panel** comprising:

1. Prime Minister
2. Leader of the Opposition
3. Union Home Minister
4. Chief Justice of India
5. Two eminent persons nominated by a committee

This development addresses concerns over political influence in the appointment process. The Act aims to establish a more impartial and transparent selection mechanism by including diverse perspectives in the decision-making process. The Act also formalizes the tenure and removal process of CECs and ECs. The term of office for the CEC and ECs is fixed at **six years** or until the **age of 65**, whichever comes first. Any removal of a sitting Election Commissioner can only occur through a **parliamentary impeachment process**, which offers a safeguard against arbitrary dismissals.

FEATURES OF THE CEC & EC ACT 2023

1. Appointment Procedure : One of the key aspects of the 2023 Act is the clarification of the appointment procedure for the CEC and Election Commissioners. Under the new law, the President is required to appoint the CEC and ECs based on a recommendation from a six-member selection panel, which will include the Prime Minister, the Leader of the Opposition in the Lok Sabha, the Union Home Minister, and the Chief Justice of India. This attempt at bipartisanship aims to reduce political interference in the appointment process, making it more transparent and fair.

2. Term and Removal of CEC & ECs: The Act specifies that both the CEC and ECs shall hold office for a term of six years or until they turn 65, whichever comes earlier. This ensures that the Election Commission retains a sense of continuity in leadership and governance. Furthermore, the process of removing a CEC or an EC has been clearly defined under the Act, with the provision of a parliamentary impeachment procedure if they are to be removed from office. This legal safeguard prevents the arbitrary removal of Election Commissioners.

3. Independence and Accountability: A significant feature of the new law is the emphasis on the autonomy of the Election Commission. The Act aims to ensure that the Election Commission functions without fear or favor, thereby ensuring impartiality in the electoral process. The Act also establishes the legal safeguards necessary to prevent political interference in the functioning of the Commission.

4. Autonomy: The Act emphasizes administrative independence for the Election Commission, aiming to reduce political influence over the Commission's operations, particularly during election periods.

5. Revised Electoral Code of Conduct: The Act also introduces clearer guidelines for the electoral code of conduct, further reinforcing its role in ensuring that elections are conducted fairly, without undue influence from external forces. This feature aims to reduce malpractices and encourage transparency during elections.

ISSUES WITH THE CEC & EC ACT 2023

1. Executive Overreach: Although the Act's intention is to create a more transparent appointment process, the role of the Prime Minister and the Home Minister in the selection panel continues to cause concern. Critics argue that the central government's significant influence in the panel can lead to an imbalance, as it may compromise the true independence of the Election Commission, making it vulnerable to political pressures.

2. Lack of Representation for Opposition: While the new law provides for the involvement of the Leader of the Opposition in the selection process, critics believe that the mechanism does not adequately empower the opposition to influence the appointment process. In the case where there is no recognized Leader of the Opposition (as may happen in a fragmented or majority government), this issue could undermine the fairness of the process.

3. Imbalance in Decision-Making: The absence of a broader, more diverse representation in the appointment process could lead to an imbalance in decision-making, giving undue weight to the ruling party's influence over the Election Commission. This is particularly concerning in a country like India, where elections are often a matter of intense political competition.

4. Lack of Constitutional Backing for Some Provisions Some provisions of the Act could potentially conflict with the original intent of the Constitution. The Parliamentary system of impeachment, which is now a provision for the removal of the CEC or ECs, might not necessarily provide the degree of independence and protection that the Election Commission requires from executive or legislative interference.

RECOMMENDATIONS FOR GREATER INDEPENDENCE OF THE ECI

1. Strengthening Opposition's Role: Ensuring that the opposition has a more significant and structured role in the selection process would help prevent political bias from affecting appointments. This could include empowering a broader selection committee, with greater input from civil society and expert bodies.

2. Institutional Safeguards for Autonomy Incorporating stronger safeguards that protect the Commission from arbitrary political interference is essential. This could include provisions that allow the Election Commission to function with more independence from government interventions, especially during election periods.

3. Expanding Public Scrutiny: Increasing public oversight and scrutiny of the process of appointment and functioning of the Election Commission could be a crucial step toward reinforcing its credibility and reducing any chance of misuse.

4. Broader Stakeholder Consultation: Engaging various political parties, civil society organizations, and legal experts in the drafting of reforms could ensure a more inclusive and representative framework, balancing the interests of all stakeholders.

CONCLUSION:

As India approaches the 2024-2025 general elections, the Election Commission (CEC and ECs) Act, 2023 aims to enhance the Commission's functioning and independence. However, concerns about political influence in appointments and the Commission's autonomy persist. The recent appointment of the new Chief Election Commissioner and other members highlights these issues. To ensure the Election Commission remains

impartial and effective, continued reforms, transparency, and safeguards are essential for upholding India's democratic values.

PRELIMS QUESTIONS:

Q. Which of the following is NOT a feature of the Election Commission (CEC and ECs) Act, 2023

- (a) Mandates a six-member panel for the appointment of the Chief Election Commissioner (CEC) and other Election Commissioners (ECs).
- (b) The tenure of the CEC and ECs is fixed at six years or until they reach the age of 65.
- (c) The Act includes provisions for impeachment of the CEC and ECs through a parliamentary vote.
- (d) The Act aims to reduce political influence over the Election Commission.

Select the correct answer using the code below:

- (a) A and B
- (b) B and C
- (c) C and D
- (d) A and C

Answer: A

MAINS QUESTIONS:

Q. Discuss the constitutional provisions related to the Election Commission of India. In what ways do recent reforms under the Election Commission (CEC and ECs) Act, 2023 aim to strengthen its independence? (250 words, 15 marks)

Nishant2356

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