

**DISASTER MANAGEMENT [GS-III]****Taiwan Improved Its Earthquake Preparedness**

The article discusses how earthquakes happen in areas where tectonic plates meet and move. It explains how Taiwan has improved its earthquake safety measures after a major quake in 1999, resulting in fewer damages in a recent earthquake. It also suggests how India can enhance its earthquake preparedness.

**causes of earthquakes**

- **Tectonic Plate Movements:** Earthquakes primarily occur due to the movement of Earth's tectonic plates. For instance, the 2015 earthquake in Nepal originated from the movement of the Indian plate against the Eurasian plate.
- **Convergent Plate Boundaries:** Many earthquakes happen along convergent plate boundaries where plates collide. The Himalayas, where India meets Eurasia, are a prominent example of such a region experiencing frequent seismic activity.
- **Specific Regional Occurrences:** In Taiwan, the collision of the Philippine Sea plate with the Eurasian plate causes significant seismic activity, as evidenced by the 1999 Chi-Chi and 2024 Hualien earthquakes.

**How Taiwan improved its earthquake preparedness ?**

- **Strengthening Building Codes:** Following the devastating 1999 Chi-Chi earthquake, Taiwan implemented stringent building codes to enhance the structural integrity of buildings. This led to minimal damage during the 2024 Hualien earthquake, despite it being nearly as strong.
- **Establishing Early Warning Systems:** Taiwan has developed one of the most advanced earthquake-monitoring networks and early warning systems in the world. These systems provide critical early alerts that help reduce casualties and damage.
- **Public Awareness and Training:** Regular awareness campaigns and drills have significantly improved public understanding of earthquake risks and preparedness.
- **Legislative Reforms:** The Disaster Prevention and Protection Act was passed, and national centers were established to coordinate earthquake response and training, improving overall disaster management.
- **Innovative Technologies in Construction:** Key structures in Taiwan, such as Taipei 101, employ advanced technologies like seismic dampers and base isolation systems to mitigate earthquake effects. Notably, Taipei 101 uses a tuned mass damper, a large steel sphere that acts like a pendulum to stabilize the building during quakes. This technology played a crucial role in preventing damage during recent seismic events.

**What can India learn from Taiwan?**

- **Implementing Building Codes:** India can adopt Taiwan's approach of enforcing stringent building codes post-earthquake, ensuring safer constructions.
- **Enhancing Infrastructure Safety:** India should prioritize earthquake-resistant infrastructure, especially in vulnerable regions like the Himalayas, to mitigate risks effectively.
- **Improving Emergency Response:** Following Taiwan's lead, India can establish better emergency response systems and public awareness campaigns to minimize casualties and damages during earthquakes.

**GOVERNANCE GS-II****Article 15 important for disability rights: Political space for disability rights, a sliver of hope**

The article discusses efforts to amend India's Constitution to protect people with disabilities from discrimination. It highlights the long-standing demands of disability rights groups and notes recent political support for this cause in election manifestos by Congress and CPI(M).

**current status of disability rights**

- **UN Convention on the Rights of Persons with Disabilities (UNCRPD):** Adopted in 2006, this convention established global standards to ensure equal rights for persons with disabilities. Over 160 countries have ratified it, committing to uphold the rights of disabled persons.
- **Legal Framework:** India ratified the UNCRPD in 2007 and passed the Rights of Persons with Disabilities Act in 2016, but these have not amended the Constitution to give disability rights constitutional protection.
- **Recent manifestos from Indian political parties like Congress and CPI(M) show a commitment to amending the Constitution to specifically include disability as a ground for discrimination.**

**Reasons for amending Article 15 important for disability rights**

- Inclusion in Fundamental Rights: Currently, Article 15 does not mention disability as a ground for discrimination. Amending it would elevate disability rights to the level of a fundamental right, offering stronger legal protection against discrimination.
- Alignment with International Standards: The amendment would bring India's constitution in line with the UN Convention on the Rights of Persons with Disabilities, which India ratified in 2007. This aligns domestic law with global commitments to protect the rights of persons with disabilities.
- Closing Legal Loopholes: The Rights of Persons with Disabilities Act 2016 allows exceptions in cases deemed to have a 'legitimate aim.' By embedding disability rights in the Constitution, these exceptions would be scrutinized more rigorously, reducing potential misuse.
- Promoting Equality: Recognizing disability in the Constitution would address historical injustices and recognize the unique challenges faced by disabled persons, promoting true equality and integration into society.
- Judicial and Political Responsibility: The amendment would shift responsibility for protecting disability rights from the judiciary to the legislature, fostering more proactive governance and less reliance on the courts to interpret protections.

**How are disability rights groups advocating?**

- Disability rights groups in India are advocating in several effective ways:
- Manifesto Release: In February 2024, organizations like the National Centre for Promotion of Employment for Disabled People and the National Disability Network released a disability-focused manifesto, urging political parties to prioritize disability issues.
- Consistent Advocacy: These groups have consistently pushed for the inclusion of disability as a ground for discrimination under Article 15 of the Constitution.
- Political Engagement: They have successfully influenced political parties to include promises for constitutional amendments in their election manifestos, reflecting a shift in political attention toward disability rights.

**ENVIRONMENT AND ECOLOGY [GS-III]**

**FSSAI Launches Nationwide Quality Check for Spice Mix Products**

The Food Safety and Standards Authority of India (FSSAI) has commissioned quality checks on the spice mixes of 2 leading spice brands in India.

- FSSAI actions follows complaints of traces of ethylene oxide more than the permissible levels in several popular spice mixes of the two leading brands.
- Hong Kong and Singapore have also recalled some variants as their respective Food Regulators found the presence of a pesticide named ethylene oxide in their spice mix.
- Centre for Food Safety (CFS) Hong Kong has recalled 4 variants namely, MDH Madras Curry Powder, Curry Powder Mixed Masala Powder, Sambhar Masala Mixed Masala Powder and Everest Fish Curry Masala.
- FSSAI, in its quality checks, will also assess whether the products sold by the concerned brands match the Indian standards of chemical residue as prescribed by the law.
- In 2023, US Food & Drug Administration recalled Everest Sambhar Masala and Garam Masala as samples tested positive for Salmonella.

**Ethylene oxide:**

- It is a flammable colorless gas with a sweet odor.
- It is primarily used to produce other chemicals like antifreeze, detergents and pesticides.
- As a sterilizing agent: It is used to sterilize medical equipment and cosmetics by destroying the DNA of bacteria and viruses.
- Pesticide: It can be used to fumigate agricultural products to prevent microbial contamination.
- Source of Exposure: Humans can be exposed to Ethylene oxide via inhalation and ingestion, which may occur through occupational (uncontrolled industrial emissions), consumer (consumption of products that have been sterilized with ethylene oxide) and environmental (generated from water-logged soil, manure, and sewage sludge) exposure.

**Carcinogenic Agent:**

- WHO's The International Agency for Research on Cancer has classified ethylene oxide as a Group 1 carcinogen.

- Short-term exposure: It can affect the human central nervous system, and cause depression and irritation of the eyes and mucous membranes
- Long term exposure: It can irritate the eyes, skin, nose, throat, and lungs, and damage the brain and nervous system.

### PRELIM FACT

#### 1. 'Pink' hydrogen

- India is considering amending the Atomic Energy Act, 1962, to allow private investments in the nuclear sector, aiming to boost nuclear capacity and promote clean energy initiatives, particularly hydrogen.
- Currently, the Act restricts private ownership of nuclear plants, but proposed amendments would enable private companies to participate in certain activities, such as financing, project development, and equipment supply.
- The production of 'pink' hydrogen, which is generated through electrolysis powered by nuclear energy.

#### 2. Ross Ice Shelf

- Researchers have discovered that the massive Ross Ice Shelf makes sudden jumps twice a day.
- These sudden shifts, akin to tremors along earthquake faults, could weaken the Ross Ice Shelf over time, potentially accelerating ice melt rates and contributing to sea level rise.
- A sudden jump occurs when two sections of ice press against each other (rubbing creates tension), just as tectonic plates on Earth cause earthquakes.
- The research team emphasises that icequakes and fractures are natural occurrences on ice shelves.

#### 3. Rules for Star Campaigners in Election

- A star campaigner is a famous person with a huge fan following chosen by a political party to contest or campaign during elections. The star campaigner can be anyone – a political heavyweight, a film star, a well-known celebrity, or even a sports person.
- They are nominated by the concerned political parties specifying their constituencies and duration of the status.
- There is no law governing who can or cannot be made a star campaigner.
- The only requirement is that these persons have to be members of the political party that appoints them.

Section 77 of the Representation of the People Act, 1951 (RP Act) provides that

- A Recognised political party (national or State) can appoint a maximum of 40 star campaigners
- A Registered unrecognized political party can appoint up to 20.
- These names are to be communicated to the Election Commission (EC) and Chief Electoral Officer (CEO) of the States as applicable within seven days from the date of notification of such election.
- In case of a multi-phase election, a political party can submit a separate list of star campaigners for different phases.

#### Benefits on Expenditure incurred by 'leaders of a political party'/Star Campaigners & a Candidate:

- According to The RP Act 1951, The Election Commission has fixed ₹95 lakh expenses limit for candidates of bigger Lok Sabha constituencies and up to ₹75 lakh for candidates of smaller constituencies.
- Political parties cover all costs of star campaigners But the star campaigner's expenses are not deducted from the candidate's expenditure.
- It allows the candidates extra spending opportunity beyond the poll panel's ₹75 – ₹95 Lakh limit for Lok Sabha polls.
- Star campaigners would be vote-fetchers for candidates set up by respective parties without affecting their expenditure limit.
- In case, the star campaigner shares the stage with the candidate or even takes the name of the candidate in his speech, his/her charges will have to be borne by the candidate from his expenses.
- Expenditure On Travel : Expenditure incurred by the 'leaders of a political party' on account of travel by air or any other means of transport for campaigning for their political party shall not be deemed to be part of the election expenditure of a candidate of such party.
- However, if any candidate(s) travel with the star campaigner, then 50% of the travel expenditure of the star campaigner shall also be apportioned to such candidate(s).

- PM or Former PM as a Star Campaigners : When a Prime Minister or a former Prime Minister is a star campaigner, the expenditure on security including on bullet-proof vehicles will be borne by the government.
- But if the Prime Minister is accompanied by another star campaigner, the candidate has to bear 50 per cent of expenditure on the security arrangements.

#### 4. Top-tier security partner

Australia's new National Defence Strategy (NDS) highlights India as a top-tier security partner, emphasizing the importance of its Comprehensive Strategic Partnership in contributing to stability in the Indo-Pacific region.

- The strategy aims to deepen defence cooperation with India through practical initiatives and information sharing.
- Australia plans to allocate \$330 billion to its Integrated Investment Programme (IIP) over the next decade, indicating a commitment to enhancing defence capabilities.
- This investment is expected to raise defence spending to around 2.4% of Gross Domestic Product by 2033-34.

India and Australia are also finalizing agreements for cooperation in hydrography and air-to-air refuelling, further enhancing their strategic partnership.

#### 5. Genomic accordion

- Mpox, a DNA virus, exhibits a unique evolutionary strategy known as the genomic accordion, involving expansions and contractions of its genome.
- Researchers identified 4-kilobase sections of the genome, previously deemed unimportant, as critical for human-to-human transmissibility and evolutionary adaptability.
- Variations in certain genes influence the virus's evolution, with different clades exhibiting varying levels of virulence.
- Genomic surveillance plays a crucial role in understanding and combating viral outbreaks, allowing for targeted interventions to mitigate health risks and prevent global spread.

### ANSWER WRITING

#### Q. Discuss the challenges and strategies for securing the Indo-Bangladesh border against illegal immigration and smuggling.

The Indo-Bangladesh border, spanning 4,096 kilometres, continues to remain porous despite ongoing efforts. This porosity poses significant challenges to the security and stability of both countries, as it facilitates illegal immigration and smuggling. Recently 3.5 kg of gold with a market value of over Rs 2 crore was seized near Indo-Bangladesh border.

#### Challenges faced in securing the Indo-Bangladesh border against illegal immigration and smuggling:

- **Geographic Complexity:** The Indo-Bangladesh border stretches over diverse landscapes. For instance, in the Sundarbans mangrove forest region, the dense and swampy terrain poses immense difficulties in establishing surveillance and patrolling mechanisms.
- **Riverine Border:** Smugglers often exploit these waterways to transport contraband goods and illegal immigrants. For example, BSF personnel seized 600 kg of Hilsa fish during river patrolling along the India-Bangladesh border in 2020.
- **Corruption:** Instances of corruption within border security agencies can undermine efforts to secure the border. Eg: In 2017, several BSF personnel were arrested for their involvement in cattle smuggling, shedding light on the issue of corruption among law enforcement officials.
- **Infrastructure Gaps:** Inadequate infrastructure, such as roads and fencing, in certain border areas hinders the establishment of a secure barrier. Eg: 3,180 km of border has been covered by physical fencing, & 916 km still lacks proper fencing.
- **Human Trafficking:** The border region is a hotspot for human trafficking. For instance, the number of women caught on the International Border between India and Bangladesh was 936 in 2019, 1,107 in 2018, and 572 in 2017.
- **Cross-Border Trade:** Legal trade and commerce across the border can sometimes be misused for smuggling activities. On the India-Bangladesh border, smuggling of fake currency is on the rise, with Rs 2.87 crore in 2015 and Rs 1.53 crore in 2016 under the guise of legitimate trade, showcasing how illicit operations can exploit legal channels.

#### Strategies for securing the Indo-Bangladesh border:

- **Technological Surveillance:** Implement advanced surveillance technologies like drones, ground sensors, and thermal imaging cameras to monitor the border's vast and challenging

terrain. Eg: India has been using Israeli-made Heron drones for aerial surveillance along the border.

- Riverine Patrol Boats: Enhance riverine border security by using specialized patrol boats equipped with radar and sonar systems. Eg: India's Introduction of Fast Interceptor Boats (FIBs) equipped with advanced communication systems and night vision equipment to patrol the Brahmaputra River exemplifies this.
- Community Engagement & public awareness: Foster cooperation and trust with borderland communities through educational initiatives and skill development programs. Eg: The Border Security Force (BSF) can initiate vocational training programs, India's "Border Haat" initiative; for local youth along the border to offer them alternative livelihoods.
- Border Infrastructure Development: Invest in improving border infrastructure, including roads, bridges, and border check-posts. On the India-Bangladesh border, smuggling of fake currency is on the rise, with Rs 2.87 crore in 2015 and Rs 1.53 crore in 2016 under the guise of legitimate trade, showcasing how illicit operations can exploit legal channels.
- Biometric Identification: Implement biometric identification systems at border crossings to verify the identity of individuals. Eg: India's Aadhar-based identification system being used to confirm the identity of individuals in border areas is a good step to prevent illegal immigration.
- Cross-Border Intelligence Sharing: Strengthen intelligence sharing with Bangladesh authorities to exchange information on smuggling networks, human trafficking, and other cross-border crimes. The strengthening of Joint Border Working Groups (JBWGs) can facilitate such cooperation.
- Smart Fencing: Install smart fencing systems equipped with sensors, alarms, and cameras along vulnerable border stretches. The Comprehensive Integrated Border Management System (CIBMS) along the India-Pakistan border exemplifies how using technology can enhance border security.
- Counter-Currency Smuggling: Implement advanced currency tracking and detection systems at border crossings to identify counterfeit currency and curb its smuggling. India's demonetization efforts in 2016 aimed at reducing the circulation of counterfeit currency was a step in the right direction.
- Diversify Border Economy: Encourage legal cross-border trade and commerce by simplifying trade procedures and reducing tariffs. Initiatives like the India-Bangladesh Protocol on Inland Water Transit and Trade can be used to promote legal trade and economic development along the border.

Overall, securing the Indo-Bangladesh border demands a dynamic approach that integrates technology, community engagement, and international cooperation. By building on recent initiatives and continually adapting strategies, India can better protect its border while fostering regional stability and development.

**MCQs**

- Consider the following statements about Food Safety And Standards Authority Of India
  - It is an independent statutory authority that has been established in 2007.
  - It comes under ministry of health and family welfare, government of india.
  - FSSAI has been created for laying down science based standards for articles of food and to regulate their manufacture, storage, distribution, sale and import to ensure availability of safe and wholesome food for human consumption.

Which of the above sentences are correct?

  - 1,2 and 3
  - 1 and 2 only
  - 2 and 3 only**
  - None
- Consider the following statements about Ross Ice Shelf:
  - It is the smallest ice shelf in Antarctica.
  - It is located on the eastern coast of Antarctica.
  - It is the largest ice shelf in Antarctica.

Which of the statements given above is/are correct?

  - 1 only
  - 1 and 2 only
  - 2 and 3 only
  - 3 only**
- Consider the following statements about the National Human Rights Commission (NHRC):
  - The NHRC was established under the Protection of Human Rights Act, 1993.
  - The NHRC has the power to inquire into violations of human rights committed by public servants.
  - The NHRC has the authority to impose penalties on individuals found guilty of human rights violations.

How many of the statements given above are correct?

- (a) Only one  
**(b) Only two**  
(c) All three  
(d) None
4. Which of the following statements best describes Sustainable Development Goal 6 (SDG 6)?  
(a) Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.  
(b) Achieve gender equality and empower all women and girls.  
**(c) Ensure availability and sustainable management of water and sanitation for all.**  
(d) Reduce inequality within and among countries.
5. The term “Mpox” sometimes mentioned in the news, is a/an/the  
(a) treatment for smallpox  
(b) detoxifying agent  
(c) strange plastic rock  
**(d) DNA virus**
6. Which of the following statements about ‘Pink hydrogen’ is correct?  
(a) Pink hydrogen is produced from natural gas through steam methane reforming without carbon capture.  
**(b) Pink hydrogen is generated through electrolysis powered by nuclear energy.**  
(c) Pink hydrogen is a form of hydrogen produced from coal gasification with carbon capture.  
(d) Pink hydrogen is another term for blue hydrogen produced from natural gas with carbon capture.
7. Consider the following protected sites:  
1. Campbell Bay & Galathea National Parks  
2. Mahatma Gandhi Marine National Park  
3. Mount Harriet National Park  
4. Rani Jhansi Marine National Park  
5. Saddle Peak National Park  
How many of the above sites are situated/located in/around the Union Territory of Andaman and Nicobar?  
(a) Only two  
(b) Only three  
(c) Only four  
**(d) All five**
8. Consider the following statement regarding Rise in sea levels:  
1. Thermal contraction mainly contributes to the rise in Sea level  
2. The continuous rise in sea level will lead to more intense storm surges.  
3. Rise in sea level also increases the salinity of the soil leading to less agricultural output.  
How many of the above statements are correct?  
(a) Only one  
**(b) Only two**  
(c) All three  
(d) None
9. Consider the following statements regarding Star Campaigners :  
1. A recognised National party can nominate a maximum of 20 star campaigners  
2. Expenditure incurred on electioneering by the star campaigner is added to a candidate’s poll expenditure.  
3. When a prime minister or a former prime minister is a star campaigner, the expenditure incurred on security including bullet-proof vehicles will be borne by the government.  
How many of the above statements are correct?  
**(a) Only one**  
(b) Only two  
(c) All three  
(d) None
10. Consider the following statements:  
1. Article 15 of the Indian Constitution prohibits discrimination based on disability.  
2. India has ratified UN Convention on the Rights of Persons with Disabilities (UNCPRD), which emphasizes that persons with disabilities should enjoy rights on an equal basis with others.  
Which of the statement(s) given above is/are correct?  
(a) 1 only  
**(b) 2 only**  
(c) Both 1 and 2  
(d) Neither 1 nor 2