District Election Management Plan

Source: TH

Why in News?

In light of the upcoming Lok Sabha elections, the conduct of elections has become increasingly complex and multifaceted, requiring meticulous planning and execution to ensure a free, fair, and inclusive electoral process.

- A cornerstone of this planning process is the **District Election Management Plan (DEMP).**

What is the District Election Management Plan (DEMP)?

- **About:**
  - **The DEMP** is a comprehensive document that uses statistics and analysis to ensure the smooth conducting of elections in districts.
- **Preparation:**
  - According to the directives of the Election Commission of India**, the DEMP** must be formulated at least six months before the tentative date of polling.
  - The dynamics of the electoral process often necessitate periodic reassessment and modification of the plan after the official announcement of elections.
  - The effective execution of the DEMP entails a coordinated endeavour involving **electoral officials, administrative bodies, law enforcement agencies**, and other pertinent stakeholders.
  - Scheduled engagements with political entities and media outlets are also arranged to provide them with comprehensive briefings on electoral regulations and procedures.

What are the Elements of DEMP?

- **District Profile:**
  - It is the foundational element of the electoral strategy, incorporating a political map delineating **constituencies**, pertinent **demographic and infrastructure statistics,** and an overview of the district's administrative structure and socio-economic characteristics.
- **Polling Station Infrastructure:**
  - Detailed strategies are devised to enhance the availability and accessibility of polling stations, ensuring essential amenities such as ramps, electricity, lighting, drinking water, toilets, and internet connectivity.
    - Special provisions are made for voters with **disabilities** and senior citizens, including the establishment of help desks, 24/7 control rooms, home voting options, and advanced postal ballot voting for essential service personnel.
- **EVM Management:**
  - **Electronic Voting Machine (EVM)** management is crucial for maintaining the integrity of the electoral process, with plans necessary for secure storage and availability of EVMs and **Voter Verifiable Paper Audit Trails (VVPATs)**, including plans for their transportation and maintenance.
- **Systematic Voters' Education and Electoral Participation (SVEEP) Plan:**
  - It focuses on augmenting electoral participation by analysing voter turnout data to identify polling stations with subpar or notably low participation rates.

    - It involves leveraging social media platforms, engaging with diverse community and youth organisations, and organising awareness-raising events leading up to the polling day.
- **Personnel Planning and Training:**
    - The DEMP outlines a comprehensive strategy for the recruitment, training, welfare, and deployment of election personnel.
    - It emphasises the necessity of establishing a robust database of poll personnel, categorising them by cadre and group, and assessing their deployment requirements while devising strategies to bridge gaps in personnel across various election roles.
    - The plan incorporates training programs for district-level teams to enforce the **Model Code of Conduct (MCC)** and provides comprehensive training for all election personnel to ensure they possess the requisite skills and knowledge for their respective roles.

Election Commission of India (ECI)

About

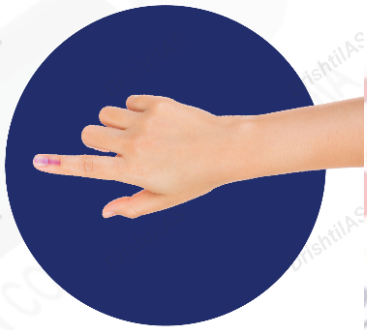
- **Autonomous Constitutional Authority** - Administers Union/state election
  - LS, RS, State LA, the offices of the President and VP
- Estd - **25th Jan1950** (National Voters' Day)

Constitutional Provisions

Part XV - Article 324 to 329

Structure

- 1 Chief Election Commissioner and 2 Election Commissioners **appointed by President**
- **Tenure- 6 years, or up to the age of 65 years,** whichever is earlier
- Retiring ECs – **eligible for further appointment by the govt.**
- **Removal of CEC-** Resolution on the **ground of proven misbehaviour or incapacity,** with majority of 2/3rd members present and voting, supported by more than 50% of the total strength of the house



Major Roles and Responsibilities

- Determining Electoral Constituencies
- Preparing/Revising electoral rolls
- Notifying the schedules and dates of elections
- **Registering political parties and granting them the status of national or state parties**
- Issuing the Model Code of Conduct (MCC) for political parties
- Advising the President on **matters concerning the disqualification of MPs**

Challenges

- Truncated Tenure of CEC
- Executive Influence in Appointments
- Dependence on Centre for Finance
- Lack of Independent Staff

Drishti IAS

UPSC Civil Services Examination Previous Year's Questions (PYQs)

Q Consider the following statements: (2012)

1. Union Territories are not represented in the Rajya Sabha.
2. It is within the purview of the Chief Election Commissioner to adjudicate the election disputes.
3. According to the Constitution of India, the Parliament consists of the Lok Sabha and the Rajya Sabha only.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) None

Ans: (d)

Q. The Constitution (Seventy-Third Amendment) Act,1992, which aims at promoting the Panchayati Raj Institutions in the country provides for which of the following? (2011)

1. Constitution of District Planning Committees.
2. State Election Commissions to conduct all panchayat elections.
3. Establishment of State Finance Commissions.

Select the correct answer using the codes given below:

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

Ans: (c)

Q. Consider the following statements: (2017)

1. The Election Commission of India is a five-member body.
2. The Union Ministry of Home Affairs decides the election schedule for the conduct of both general elections and bye-elections.
3. Election Commission resolves the disputes relating to splits/mergers of recognised political parties.

Which of the statements given above is/are correct?

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

Ans: (d)

Taiwan Earthquake and Pacific Ring of Fire

For Prelims: **Pacific Ring of Fire**, Circum-Pacific Belt, Subduction, **Tsunami**, **Earthquake.**

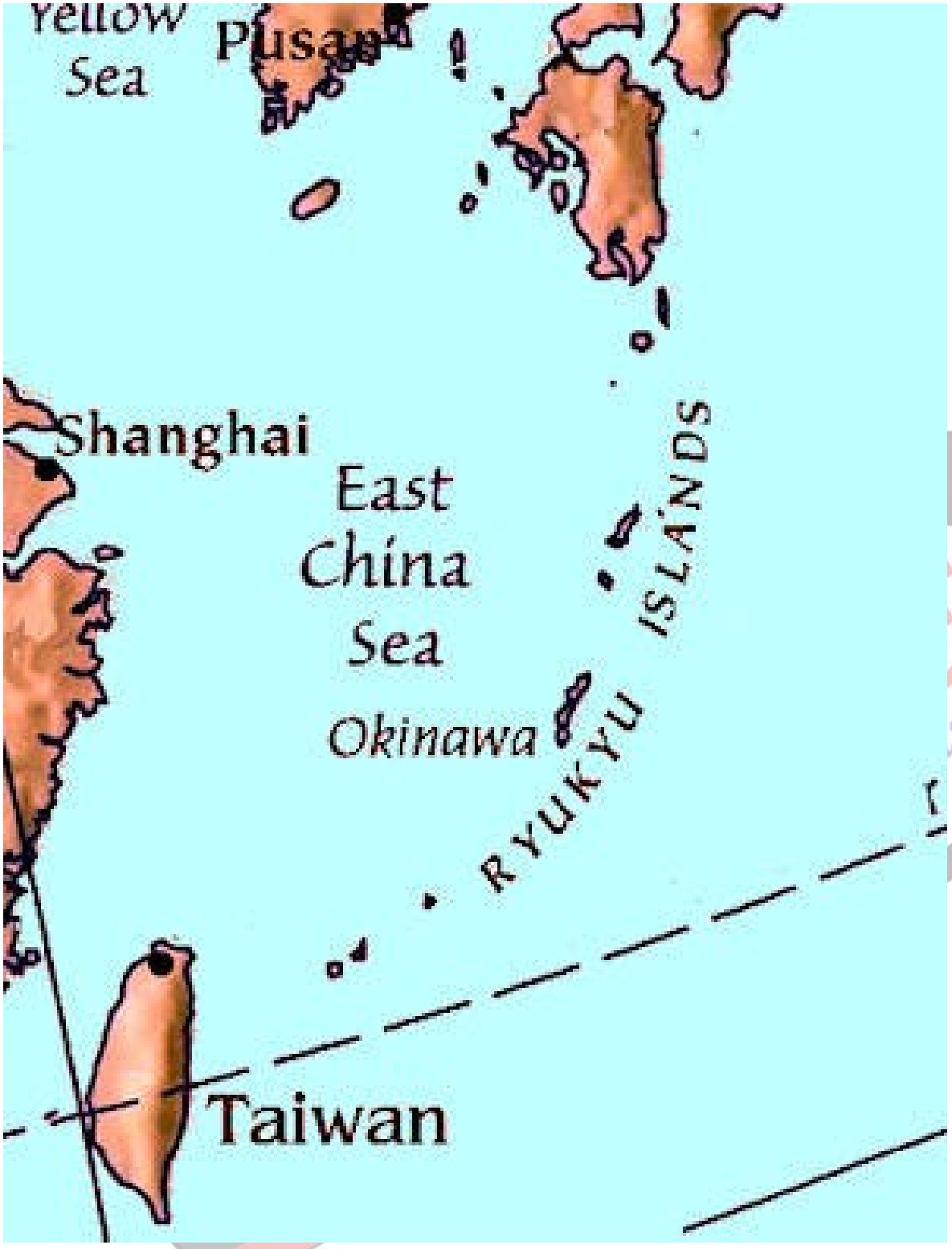
For Mains: Ring of Fire, Features and Causes of Frequent Earthquakes in the Pacific Ring of Fire.

Source: IE

Why in News?

A huge **earthquake** measuring **7.4 on the Richter Scale** struck Taiwan, making it one of the biggest Earthquakes in at least 25 years.

- Japan issued a tsunami alert for the **Ryukyu chain of islands which stretches from Taiwan** to its main 'home island' of Kyushu. The Ryukyu group includes the island of Okinawa, which has been home to large US military bases **since** World War II **and the** Cold War**.**



What are the Causes of Such Earthquakes in Taiwan?

- Taiwan is prone to earthquakes as it lies along the Pacific “Ring of Fire” **— where 90%** of the world’s earthquakes take place.
    - The Ring of Fire is the line of seismic faults encircling the Pacific Ocean where most of the world's earthquakes occur.
- The area is particularly vulnerable to **temblors due to the tension accumulated from the interactions of two tectonic plates,** the Philippine Sea Plate and the Eurasian Plate, which may lead to sudden releases in the form of earthquakes.
- Taiwan’s mountainous landscape **can magnify the ground shaking, leading to landslides.**
    - Several such landslides occurred on Taiwan's eastern coast near the epicenter of when

falling debris hit tunnels and highways, crushing vehicles and causing several deaths.

EARTHQUAKE

ABOUT

- Shaking of the earth; caused due to release of energy, generating seismic waves in all directions

HYPOCENTER

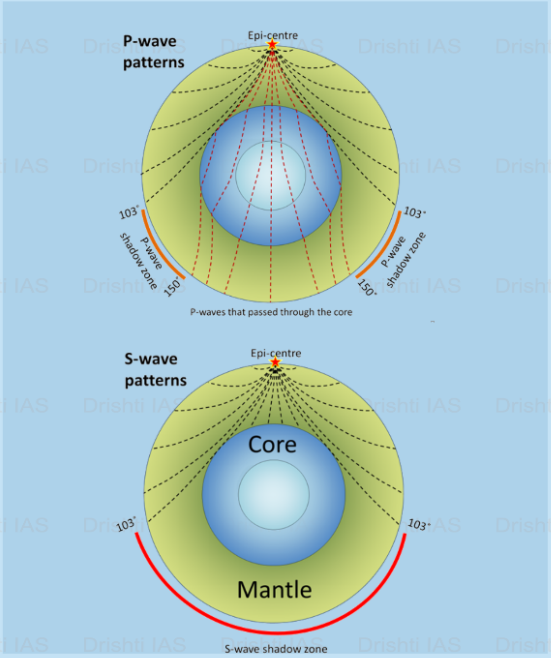
- Location where the earthquake starts (below earth's surface)

EPICENTER

- Location right above the Hypocenter (on the earth's surface)

EARTHQUAKE WAVES

- Body Waves: Move in all directions travelling through the body of the earth
  - P Waves: Move faster, First to arrive at surface, Similar to sound waves, Travel through gaseous, liquid and solid materials
  - S Waves: Arrive at surface with some time lag, Travel only through solid materials
- Surface Waves: Last to report on seismographs, More destructive, Cause displacement of rocks
  - Love Waves: Same motion as S-waves (horizontal) without vertical displacement, Sideways motion perpendicular to the direction of propagation, Faster than Rayleigh waves
  - Rayleigh Waves: Cause the ground to shake in an elliptical pattern, Spread out the most of all seismic waves, Move vertically and horizontally in a vertical plane



CAUSES OF EARTHQUAKES

- Release of energy along a Fault/Fault Zones (break in the crustal rocks)
- Movement of tectonic plates (most common)
- Volcanic eruption (stress changes in rock-injection/withdrawal of magma)
- Human activities (mining, explosion of chemical/nuclear devices etc.)

MEASURING EARTHQUAKE

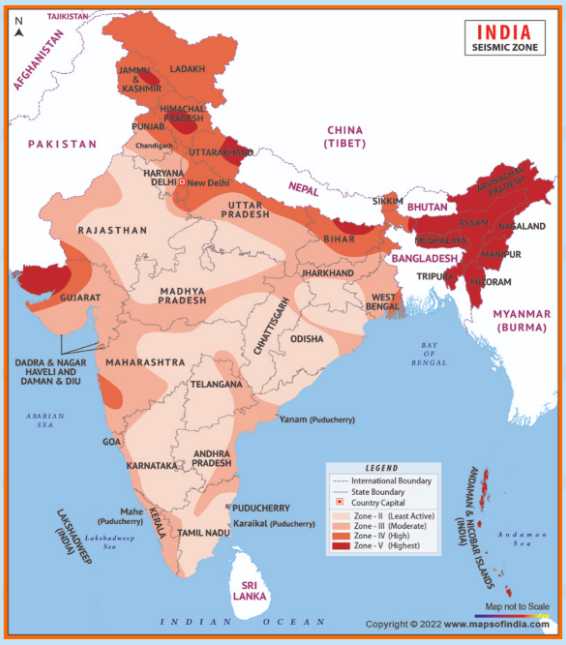
- Seismometers - Measures seismic waves
- Richter Scale - Measures magnitude (energy released; range: 0-10)
- Mercalli - Measures intensity (visible damage; range: 1-12)

DISTRIBUTION

- Circum-Pacific Belt - 81% of earthquakes
- Alpide Earthquake Belt - 17% of the largest earthquakes
- Mid-Atlantic Ridge - Mostly submerged underwater

EARTHQUAKE IN INDIA

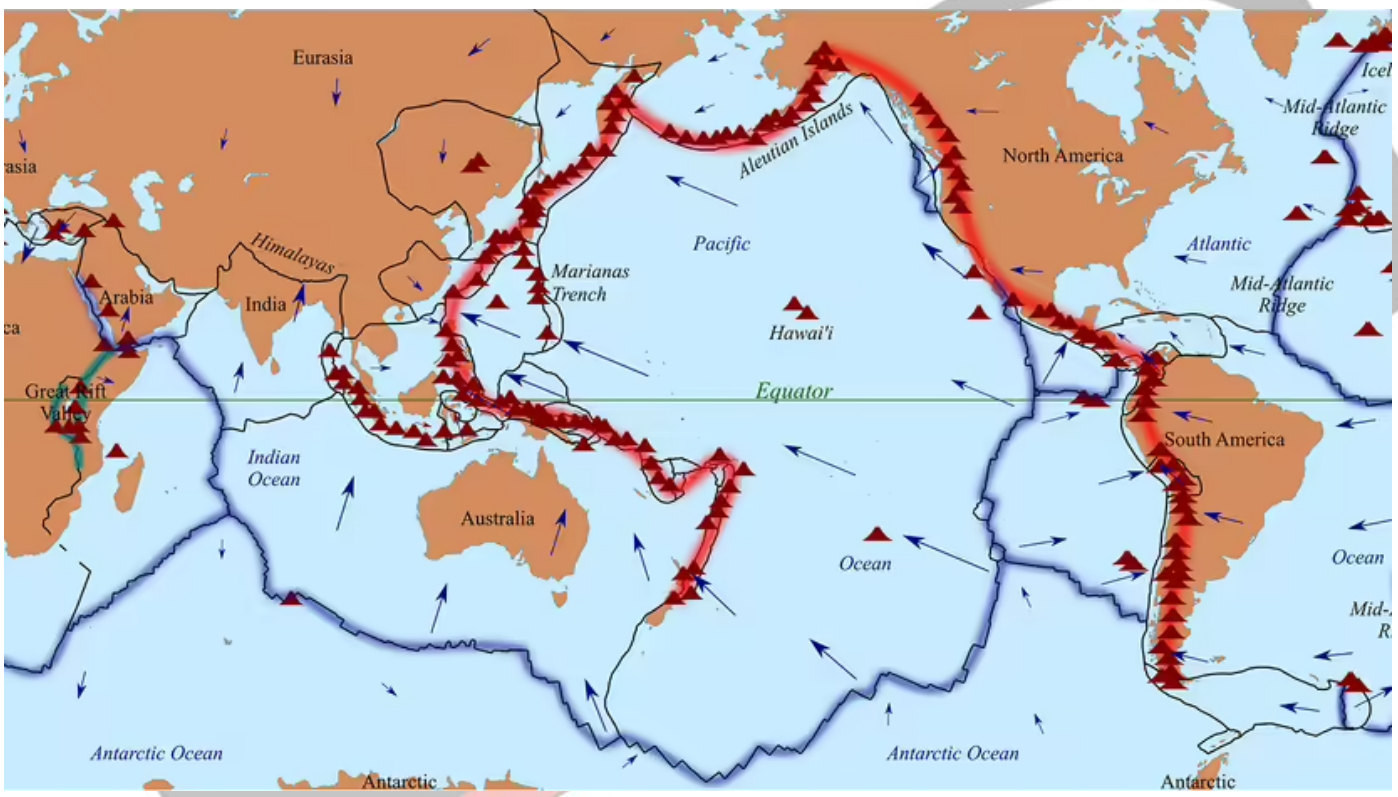
- India is one of the highly earthquake affected countries due to the presence of technically active mountains - the Himalayas.
- India has been divided into 4 seismic zones (II, III, IV, and V)



Drishti IAS

What is the Pacific Ring of Fire?

- **About:**
  - Also called **the Pacific rim or the Circum-Pacific Belt, i**s an area along the Pacific Ocean that is characterised by active volcanoes and frequent earthquakes.
  - It is home to about **75% of the world's volcanoes** and about **90% of the world's earthquakes occur here.**
- **Geographical Stretch:**
  - The Ring of Fire is stretched to approximately 40,000 kilometres tracing boundaries between several tectonic plates including the **Pacific, Juan de Fuca, Cocos, Indian-Australian, Nazca, American, and Philippine Plates.**
  - The chain runs up **along the western coast of South and North America,** crosses over the Aleutian Islands in Alaska, and runs down the eastern coast of Asia past New Zealand and into the northern coast of Antarctica.
  - There are **several countries in the ring of fire like** Indonesia, New Zealand, Papa New Guinea, Philippines, Japan, United States, Chile, Canada, Guatemala, Russia, Peru, Solomon Islands, Mexico and Antarctica.



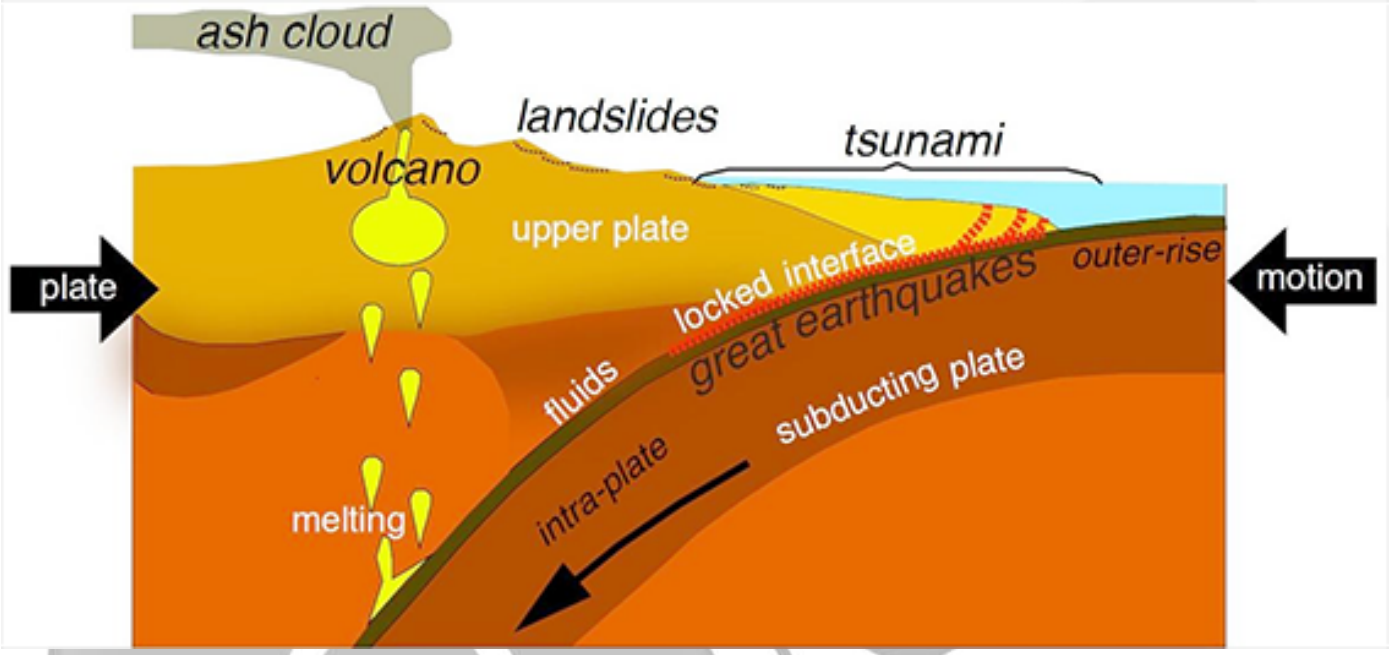
- **Causes of Volcanic Activity:**
  - Tectonic plates move towards each other **creating subduction zones**. One plate gets pushed down or is subducted by the other plate. This is a very slow process – a movement of just one or two inches per year.
  - As this subduction happens, **rocks melt, become magma move to Earth's surface** and cause volcanic activity.
- **Recent Research:**
  - The Pacific Plate, which drives much of the tectonic activity in the Ring of Fire, is cooling off.
    - The cooling process may alter the dynamics of plate boundaries, **affecting subduction zones and mountain-building processes.**
  - Scientists have discovered that the **youngest parts of the Pacific Plate** (about 2 million years old) **are cooling off and contracting at a faster rate** than older parts of the plate (about 100 million years old).
    - It could lead to **increased stress accumulation along plate boundaries and**

may result in more frequent and potentially stronger earthquakes.

- The younger parts of the plate are found in its northern and western parts, the most active parts of the Ring of Fire.

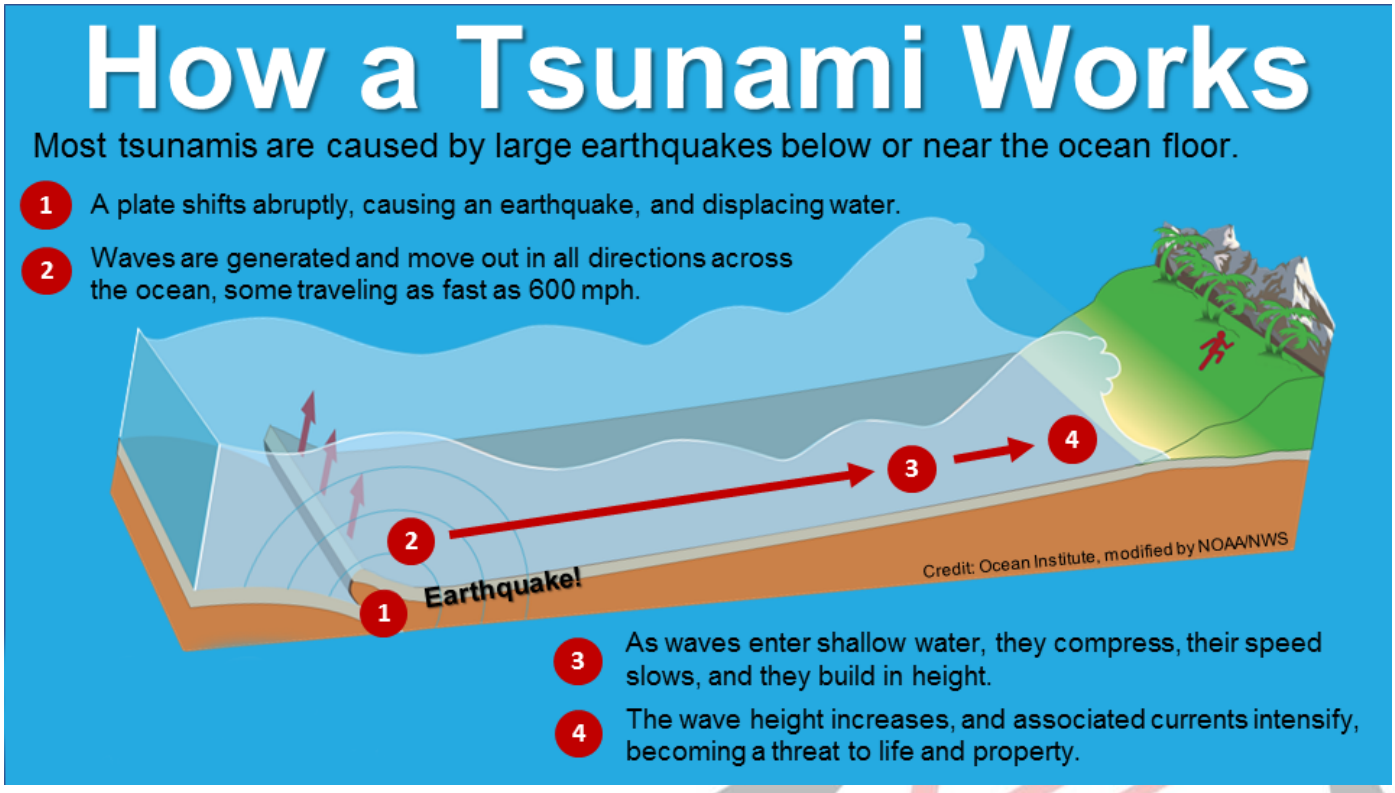
What is Subduction?

- Subduction happens **when tectonic plates shift,** and one plate is pushed under another. This movement of the ocean floor produces a "mineral transmutation", which leads to the melting and solidification of magma i.e., the formation of volcanoes.
  - In other words, when a **"downgoing" oceanic plate is pushed into a hotter mantle plate**, it heats up, volatile elements mix, and this produces the magma.
  - The magma then rises up through the overlying plate and spurts out at the surface.
- A subduction zone is the biggest crash scene on Earth. These boundaries mark the collision between two tectonic plates.
- When two tectonic plates meet at a subduction zone, one bends and slides underneath the other, curving down into the mantle, the hotter layer under the crust.



What is a Tsunami?

- Tsunami is a **Japanese term meaning a harbour wave.** It is also commonly known as killer waves.
- A Tsunami is not just a single wave **but a series of ocean waves** called a wave train caused by an underwater earthquake, by a volcanic eruption, landslide, rapid changes in atmospheric pressure, or a meteorite.
- However, tsunamis **caused by volcanic activity are less frequent.**
- Most tsunamis–about 80%–happen within the **Pacific Ocean's "Ring of Fire,"** a geologically active area where tectonic shifts make volcanoes and earthquakes common.
- Tsunamis race across the sea at up to 800 kilometres an hour. At that pace, they can cross the entire expanse of the Pacific Ocean in less than a day.
- Since they are long wavelengths, they lose very little energy along the way.
  - **In December 2015,** the UN General Assembly designated **5th November as World Tsunami Awareness Day.**



Drishti Mains Question:

Q. Discuss the causes, impacts, and mitigation strategies for earthquakes and tsunamis, highlighting the importance of early warning systems and community preparedness.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Prelims:

Q. Consider the following: (2013)

1. Electromagnetic radiation
2. Geothermal energy
3. Gravitational force
4. Plate movements
5. Rotation of the earth
6. Revolution of the earth

Which of the above are responsible for bringing dynamic changes on the surface of the earth?

(a) 1, 2, 3 and 4 only
(b) 1, 3, 5 and 6 only
(c) 2, 4, 5 and 6 only
(d) 1, 2, 3, 4, 5 and 6

Ans: (d)

Mains:

Q. Discuss about the vulnerability of India to earthquake related hazards. Give examples including the salient features of major disasters caused by earthquakes in different parts of India during the last three decades. **(2021)**

Q. Why are the world's fold mountain systems located along the margins of continents? Bring out the association between the global distribution of fold mountains and earthquakes and volcanoes. **(2014)**

Voter Verified Paper Audit Trail (VVPAT)

For Prelims: ECI, VVPAT, Electronic Voting Machine, Model Code of Conduct

For Mains: Challenges facing the VVPAT system in Indian elections, Potential solutions for ensuring the reliability and transparency of the VVPAT system in future elections, VVPAT and Free and Fair Elections.

Source: IE

Why in News?

Recently, the **Supreme Court** announced that it would soon address petitions for 100% verification of **Voter Verified Paper Audit Trail (VVPAT)** slips, just ahead of the first phase of voting on 19th April 2024.

What is a VVPAT Machine?

- **About:**
  - The **VVPAT machine** is attached to the **ballot unit** of the **Electronic Voting Machine (EVM)**, and provides visual verification for the vote cast by a voter by printing a slip of paper with the voter's choice on it.
  - The slip of paper with the candidate's details is **briefly displayed** for verification behind a glass window, giving the voter 7 seconds, before dropping into a compartment below.
  - Voters are **not allowed** to take the VVPAT slip home as it is **used to verify votes in five randomly selected polling booths.**
  - The concept aims to **enhance trust** in the voting process by enabling **physical verification** of electronically cast votes, reassuring both voters and political parties about the accuracy of their votes.
- **Reason for Introduction:**
  - The concept of the VVPAT machine was **initially proposed in 2010** during a meeting between the **Election Commission of India (ECI)** and **political parties** to enhance **transparency** in the **EVM-based polling process.**
  - Following prototype preparation, **field trials were conducted** in Ladakh, Thiruvananthapuram, Cherrapunjee, East Delhi, and Jaisalmer in **July 2011.**
    - It led to **the approval of VVPAT** by an expert committee of the ECI **in February 2013.**
- **Legal Aspect:**
  - **In 2013**, the **Conduct of Elections Rules, 1961** were amended to allow for a **printer with a drop box** to be attached to the EVM.
    - The **VVPAT** was first used in all 21 polling stations of the **Noksen Assembly** constituency of Nagaland in 2013, leading to its phased introduction decided by the ECI, with **100% adoption by June 2017.**
  - **Supreme Court's Views on VVPAT:**
    - In ***Subramanian Swamy vs Election Commission of India Case, 2013***, the Supreme Court mandating VVPATs for transparent elections, compelling **government funding** for their implementation.

- **In 2019**, a petition was moved to the SC asking for a minimum 50% randomised VVPAT slips to be counted.
    - However, the Election Commission of India (ECI) raised concerns regarding the challenges posed by counting 50% of VVPAT slips, including a potential delay of 5-6 days in declaring election results and infrastructure limitations such as the availability of manpower.

What Does the Statistical Data Say About VVPAT Slips?

- Initially the **Election Commission** used to match VVPAT **paper slips of 4,125 electronic** voter machines under the one EVM per assembly segment rule.
    - This was based on the result of the request made by the EC, in 2018 **to the Indian Statistical Institute (ISI)** to determine a sample size for the **internal audit** of VVPAT slips with EVM results that is mathematically sound, statistically robust, and practically cogent.
        - **As per ISI's calculations,** even counting **slips from 479** randomly selected VVPATs across the country **would guarantee over 99% accuracy.**
- However, the **Supreme Court** ruled in 2019 that **VVPAT slips of five electronic voting machines in every constituency should be counted** instead of just one EVM for the **greatest degree of accuracy,** and satisfaction in the election process.
    - These five polling stations are **selected by a draw** of lots by the Returning Officer concerned, in the presence of candidates/ their agents.
    - With the Supreme Court ruling, the **ECI has to now count VVPAT slips of 20,625 electronic voting machines.**

Indian Statistical Institute (ISI)

- The **Indian Statistical Institute (ISI)** is a prestigious institution in India, recognised as an **Institute of National Importance** by the 1959 act of the Indian parliament.
- It was registered on 28th April 1932 as a non-profit distributing learned society under the **West Bengal Societies Registration Act, 1860.**
- It was founded by Professor Prasanta Chandra Mahalanobis **in Kolkata.**
- ISI engages in extensive research, with contributions to various fields and collaboration with governmental and industrial entities.
    - It comes under the **Ministry of Statistics and Program Implementation.**

Drishti Mains Question:

Q. Examine the importance of Voter Verified Paper Audit Trail (VVPAT) in maintaining electoral integrity and reinforcing democratic values in India.

UPSC Civil Services Examination, Previous Year Questions (PYQ)

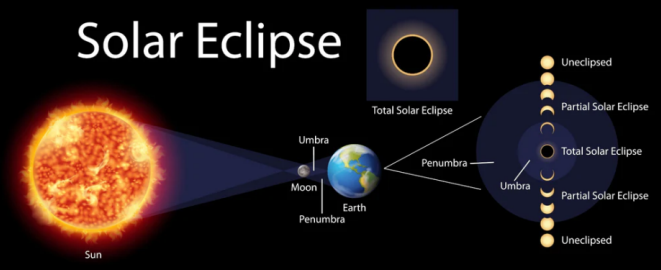
Mains:

Q. In the light of recent controversy regarding the use of Electronic Voting Machines (EVM), what are the challenges before the Election Commission of India to ensure the trustworthiness of elections in India? **(2018)**

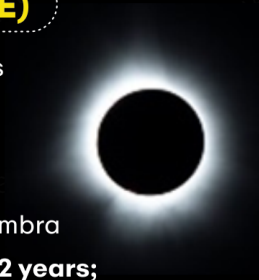
Solar Eclipse

TYPES OF SOLAR ECLIPSE

A solar eclipse occurs when, at just the right moment, the Moon passes between the Sun and Earth.



Total Solar Eclipse (TSE)



- The Moon completely covers the Sun but **corona can be witnessed**
- **Essential condition for TSE: Syzygy**
- No sunlight penetrates the umbra
- A TSE **occurs once every 1-2 years;** the longest timing recorded is 7.5 minutes

Annular Solar Eclipse (ASE)

- **Moon near its farthest point** from Earth; Sun not fully covered by the moon
- Sunlight dims, but the sky does not go dark
- Sun's **corona not visible**
- **Essential condition for ASE: New Moon**
- Moon is at (or very near) a **lunar node,** so the Earth, the Moon, and the Sun are aligned in a straight (or nearly straight) line
- Sun looks like a ring **(annulus)** of light

Partial Solar Eclipse (PSE)

- The Moon passes between the Sun and Earth, but **alignment is not perfect**
- Crescent shape as only a portion of the Sun is covered
- About 35% of all solar eclipses are PSEs

Keywords Related to Solar Eclipse

- **Syzygy:** Linear alignment of three celestial objects
- **Bailey's Beads:** Appear around Moon's edge during totality, caused by sunlight passing through valleys and between mountains on the Moon's irregular surface
- **Shadow Bands:** Solar crescent in PSE acts as an anisotropic filter resulting in bands on the ground just before and immediately after totality
- **Diamond Ring Effect:** When the Sun is fully covered by the moon and a final bright spot of sunlight called the "diamond" remains visible in TSE
- **Apogee and Perigee:** Points in the moon's orbit farthest (Apogee) and nearest (Perigee) to the earth
- **Umbra and Penumbra:** 2 parts of Moon's shadow: central region (umbra) and outer region (penumbra)
- **Eclipse Magnitude:** Fraction of Sun's diameter covered by Moon
- **Saros Cycle:** A period of ~18 years, 11 days, and 8 hours during which the Sun, Earth, and Moon return to the same relative positions in the sky