

INDIA'S SURFACE TEMPERATURE MAY INCREASE BY 1.1 TO 5.1 DEG. CELSIUS BY 2100

Why in the News?

- Surface temperatures over India were likely to increase by 1.1 to 5.1 degree Celsius by the year 2100, a new study by IIT-Kharagpur has indicated.

About the Study:

- A study was conducted by the Indian Institute of Technology, Kharagpur (IIT-KGP) recently.
- This study, titled 'Surface Temperature Increase over India during 1980-2020 and Future Projections: Causal Relationships Between Drivers and Trends,' was published in the journal Nature last month.
- The study was conducted in association with Indian Institute of Tropical Meteorology in Pune.
- It was conducted by investigating the long-term trends of surface temperature in India using surface, satellite and reanalysis data for the period of 1980-2020.
- It also assessed the influence of geophysical drivers on temperature change using the causal discovery.

Major Findings of the Study:

- According to the study, India's surface temperature could surge by 1.1 to 5.1 degrees Celsius by the year 2100.
- The study found **increasing temperature trend during the pre-monsoon and post-monsoon seasons** in the northwest, northeast, and northcentral regions of India.
 - The actual rise in temperatures over the Indian region till now has been significantly lower than the global average.
- It attributes the temperature increase to high emissions and states that **temperatures might reach a staggering 5.1 degrees Celsius**
 - Under moderate emissions scenarios, the average temperature over India as a whole is likely to be about 1.2-2 degrees Celsius by 2100.

- Under the high emission scenario (emissions increasing by 3 times by 2075), the average temperature is likely to increase by 3.5-5.1 degrees by 2100.
- However, as per the study, the **high emission scenarios is unlikely because so many measures are being taken to bring down the emissions.** But it can certainly come up to maybe 3 degrees Celsius if the emissions do not come down.

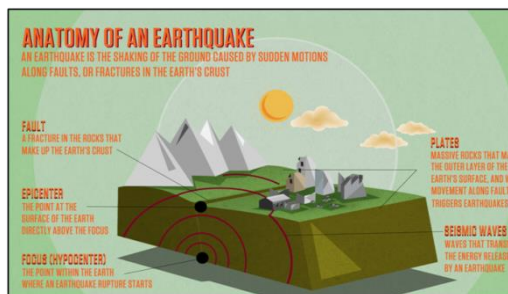
[EARTHQUAKE IN NEPAL: 157 KILLED IN NEPAL QUAKE, TOLL MAY RISE; INDIA OFFERS ASSISTANCE](#)

Why in News?

- At least 157 people were killed and over 160 others injured when a powerful 6.4 magnitude earthquake, the worst since 2015, struck Himalayan nation's (Nepal) remote mountainous region.
- While the epicenter was at **Ramidanda in Jajarkot district**, about 550 km from Kathmandu, the tremors were felt in New Delhi and parts of north India too.

What is an Earthquake?

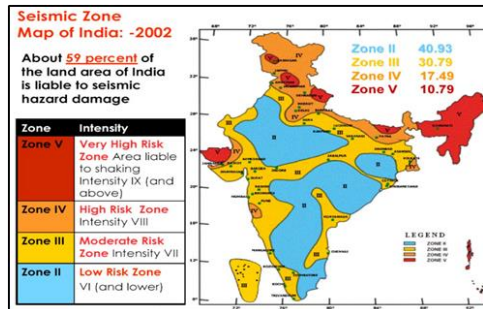
- An earthquake is **an intense shaking of the ground** caused by movement under the earth's surface.
- The location below the earth's surface where the earthquake starts is called the
- The location directly above the hypocentre on the surface of the earth is called the **epicentre**.
- It happens when **two blocks (tectonic plates) of the earth suddenly slip** past one another releasing stored-up 'elastic strain' energy in the form of seismic waves.
- These **spread through the earth** and cause the shaking of the ground.
- They are measured on scales called the -



- **Moment Magnitude Scale (Mw)**, based on the total moment (a product of the distance a fault moved and the force required to move it) release of the earthquake.
- The **Richter scale** (magnitude scale) - energy released - 0-10.

- The intensity scale/Mercalli scale - visible damage - 1-12.
- Earthquakes continue to remain the most common natural hazard that **cannot be predicted** as no early warning systems can be developed.

What are the Earthquake High Risk Zones in India?



- **Western Himalayas** continue to be one of the most dangerous seismic zones in the world.
- According to the scientists, **the Himalayan region** - the 2500-km stretch from the Hindu Kush mountains to the end of Arunachal Pradesh - is due for a big earthquake (magnitude of over 8 on Richter scale) anytime.
- This is because of the **huge amount of energy stored along the fault lines** due to the continuous interaction of different tectonic plates.
- This energy can be released only in the form of massive earthquakes.

WHAT IS THE COMMANDO BATTALIONS FOR RESOLUTE ACTION (COBRA)?

The Central Reserve Police Force (CRPF) recently decided to withdraw its elite CoBRA force from Jammu and Kashmir following objections to its deployment from some senior officials of the paramilitary force.



About Commando Battalions for Resolute Action (CoBRA):

- Established in 2008, CoBRA is a **specialised unit of the Central Reserve Police Force (CRPF)**.
- It is one of the few units of the CRPF in the country that is **specifically trained in guerilla tactics and jungle warfare**.
- They are also known as **'jungle warriors'**.
- **Originally established to counter the Naxalite problem** (it was originally trained to track, hunt, and eliminate Naxalite groups), CoBRA is **deployed within India to address any insurgent group** engaging in asymmetrical warfare.

- **Personnel for CoBRA are selected from CRPF**, as CoBRA is an integral part of CRPF.
- They **undergo rigorous commando and jungle warfare training** before being posted to CoBRA units for operations.
- It **has 10 units**, raised between 2008 and 2011
- The **majority of CoBRA teams are deployed in various Maoist violence-affected states**, while a few are based in the northeastern states to undertake **counter-insurgency operations**.

Key Facts about the Central Reserve Police Force (CRPF):

- It is the **premier central police force** of the Union of India for internal security.
- It **functions under** the authority of the **Ministry of Home Affairs (MHA)** of the Government of India.

History of CRPF:

- **Originally constituted as the Crown Representative Police in 1939**, it is one of the **oldest** Central paramilitary forces (now termed the Central Armed Police Force).
- CRPF was raised as a sequel to the political unrest and agitations in the then princely States of India following the Madras Resolution of the All-India Congress Committee in 1936 and the ever-growing desire of the Crown Representative to help the vast majority of the native States to preserve law and order as a part of imperial policy.
- It became the CRPF on enactment of the CRPF Act on 28th December

Duties performed by the CRPF are

- Crowd control, **Riot control**
- **Counter Militancy / Insurgency operations**, Dealing with Left Wing Extremism
- Overall co-ordination of **large-scale security arrangements**, especially with regard to **elections** in disturbed areas.
- **Protection of VIPs and vital installations**
- Checking environmental degradation and protection of local flora and fauna
- Fighting aggression during wartime

- Participating in UN Peacekeeping missions
 - Rescue and Relief operations at the time of natural calamities.
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ADVOCATE-ON-RECORD SYSTEM IN THE SUPREME COURT

Why in news?

- Recently, the Supreme Court pulled up an Advocate-on-Record (AoR) for filing a frivolous case and dismissed the public interest litigation.
- The Court censured the lawyer that an AoR cannot merely be a signing authority.

Advocate-on-Record (AOR)

- **About**
 - An AOR is a lawyer in the Indian legal system who is registered and authorized by the Supreme Court of India to represent clients in that court.
- **Functions**
 - AORs have the exclusive right to file and argue cases in the Supreme Court on behalf of their clients.
 - Only an AoR can file cases before the Supreme Court.
 - An AoR might engage other lawyers including senior counsels to argue before the Court but the AoR is essentially the link between the litigant and the highest court of the country.
 - AORs can appear before other courts too.
 - Basically, AORs can file a petition, draft an affidavit, file a Vakaltnama, or any other application at the Supreme Court on behalf of the party.

How does one become an AoR?

- The Supreme Court Rules, 2013 prescribe eligibility criteria for an AoR.
- To become an AOR, an advocate must:
 - Clear the exam held by the Supreme Court of India;
 - Have at least four years of practice before starting the training;
 - Train with a court approved AoR for at least one year;

- Score at least 60% in a three-hour exam;
- The subjects include Practice and Procedure, Drafting, Professional Ethics and Leading Cases.
- Have a registered office within a radius of 16-kilometre from the Supreme Court building;
- He/she is required to give an undertaking to employ, within one month of being registered as an AoR, a registered clerk.

PROTECTION OF WOMEN FROM DOMESTIC VIOLENCE ACT, 2005 (DV ACT)

The Supreme Court recently agreed to examine whether a transgender woman can claim maintenance under the Protection of Women from Domestic Violence Act, 2005 (DV Act).



About Protection of Women from Domestic Violence Act 2005 (DV Act):

- The DV Act was enacted by Parliament on September 13, 2005, and **extends to the whole of India.**
- It is basically meant to **provide protection to a wife or female live-in partner from violence at the hands of the husband, a male live-in-partner, or his relatives.**
- **Domestic violence** under the Act includes **actual abuse or the threat of abuse, whether physical, sexual, verbal, emotional, or economic.**
- **Harassment by way of dowry demands is also covered** under the definition of domestic violence.

Who is covered under the Act?

- The Act covers **all women** who may be **mother, sister, wife, widow, or partners living in a shared household.**
- The **relationship may be in the nature of marriage or adoption.**
- In addition, **relationships with family members living together as a joint family are also included.**
- **Who can file a complaint?**

- Any woman who alleges to have been subjected to any act of domestic violence by the offender or any person may file a complaint on her behalf.
- A child is also entitled to relief under the DV Act. The mother of such a child can make an application on behalf of her minor child (whether male or female).
- In cases where the mother makes an application to the court for herself, the children can also be added as co-applicants.
- However, no female relative of the husband or the male partner can file a complaint against the wife or the female partner.

Against whom can a complaint be filed?

- Any adult male member who has been in a domestic relationship with the woman
- Relatives of the husband or the male partner (including both male and female relatives of the male partner)
- Remedies available: Under the law, women can apply for reliefs such as
- Protection Order
- Residence Order for residing at Matrimonial House
- Monetary Orders, which include maintenance for herself and her children
- Temporary custody of children
- Compensation order for the damages caused to her
- It is only when the relief granted by the courts is breached that criminal action is taken against the respondent.

KEY FACTS ABOUT DEAD SEA

Iran-backed 'Islamic Resistance in Iraq' recently claimed an attack against an Israeli target on the Dead Sea Coastline.



About the Dead Sea:

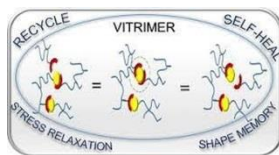
- The Dead Sea, also called the Salt Sea, is a salt lake bordering Jordan to the east and Israel to the west.

- However, the western shore's southern half belongs to Israel, while the shore's northern half is in the West Bank, an area claimed by both Israel and Palestine.
- It lies to the east of the Mediterranean Sea and south of the Sea of Galilee.
- It lies in the Jordan Rift Valley and is fed mainly by the Jordan River, which enters the lake from the north.
- It does not have an outlet, and so it loses its water mainly through evaporation.
- Its surface and shores are 427 metres below sea level, Earth's lowest elevation on land.
- It is 306 m deep, the deepest hypersaline lake in the world.

With 2% salinity (in 2011), it is also one of the world's saltiest bodies of water, though Lake Vanda in Antarctica (35%), Lake Assal (Djibouti) (34.8%), Lagoon Garabogazköl in the Caspian Sea (up to 35%), and some hypersaline ponds and lakes of the McMurdo Dry Valleys in Antarctica (such as Don Juan Pond (44%)) have reported higher salinities.

- It is almost ten times saltier than ordinary
- This salinity makes for a harsh environment in which animals cannot flourish, hence its name.
- It is 50 kilometres long and 15 kilometres wide at its widest point.
- The Dead Sea seawater has a density of 1.240 kg/L, which makes swimming in its waters similar to floating.

WHAT IS VITRIMER?



Researchers at the University of Tokyo have successfully created “sustainable plastic,” which is based on an epoxy resin vitrimer.

About Vitrimer:

- These represent a relatively recent category of plastics known for their impressive strength at low temperatures.
- They also possess the unique ability to be reshaped numerous times when exposed to higher temperatures.

- It is also partially biodegradable.
 - Nonetheless, they do have a notable drawback - **extreme brittleness**, as they cannot be stretched far before breaking.
 - To address this issue, researchers introduced a molecule called polyrotaxane into the plastic synthesis process, resulting in a novel plastic variant they've **dubbed VPR**, an abbreviation for "**vitriimer incorporated with polyrotaxane.**"
 - VPR is over five times as resistant to breaking as a typical epoxy resin vitriimer.
 - At a high temperature of around 150 degrees Celsius, VPR starts to recombine, allowing the material to take on different forms.
 - It also repairs itself 15 times as fast, can recover its original memorised shape twice as fast, and can be chemically recycled 10 times as fast as the typical vitriimer.
 - It even **biodegrades safely in a marine environment**, which is new for this material.
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