



# STATE PCS CA

(CONSOLIDATION)

UTTARAKHAND

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**Drishti, 641, First Floor, Dr. Mukherjee  
Nagar, Delhi-110009**

**Inquiry (English): 8010-440-440**

**Inquiry (Hindi): 8750-187-501**

**Website: [www.drishtias.com](http://www.drishtias.com)**

**Email: [help@groupdrishti.in](mailto:help@groupdrishti.in)**

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## Uttarakhand Mandates Garbage Bags in Vehicles

### Why in News?

Recently, the **Uttarakhand Government** has implemented a new rule mandating that all vehicles entering the state must be equipped with **garbage bags** or **dustbins**.

- This measure aims to promote **responsible tourism** and preserve the **pristine environment of Uttarakhand**.

### Key Points

- **Inspections:** The transport department will conduct inspections at entry points to ensure compliance.
- **Trip Cards:** Vehicles will be issued **trip cards** only if they have the **required garbage disposal facilities**.
- **Documentation:** Vehicle owners must present **valid documents** like **registration certificates, fitness certificates, insurance papers, and pollution certificates** to receive a trip card.
- **Broader Strategy:** This initiative is part of a larger effort to **protect Uttarakhand's natural beauty**, especially along popular tourist routes.
- **Cooperation:** The transport department is seeking cooperation from neighboring states to enforce this rule.
- **Collective Responsibility:** The regulation emphasizes the shared responsibility of residents and tourists in maintaining the state's cleanliness.

## Survey of Flood Affected Areas

### Why in News?

Recently, Uttarakhand Chief Minister directed the officials to **immediately identify "sensitive" villages and relocate the affected people to safer places** in view of **heavy rains and landslides** in parts of the state.

### Key Points

- According to the officials, **Cloudbursts** in **Pauri Garhwal's Toli, Bodh Kedar, and Tehri Garhwa's Jakhana and Tingarh** caused **massive destruction**.
- Action is being taken to **streamline the electricity and drinking water arrangements in the disaster**

affected area and Rs 57,500 have also been given to **livestock** owners for animal loss.

### Cloudbursts

#### ➤ About:

- Cloudbursts are **short-duration, intense rainfall events over a small area**.
- It is a weather phenomenon with unexpected **precipitation exceeding 100 mm/h over a geographical region of approximately 20-30 square km**.
- In the Indian Subcontinent, it **generally occurs when a monsoon cloud drifts northwards**, from the **Bay of Bengal** or **the Arabian Sea** across the plains then on to the Himalaya that sometimes brings 75 millimeters of rain per hour.

#### ➤ Occurrence:

- The **relative humidity and cloud cover is at the maximum level with low temperature and slow winds** because of which a high amount of clouds may get condensed at a very rapid rate and result in a cloudburst.
- **As temperatures increase, the atmosphere can hold more and more moisture and this moisture comes down as a short very intense rainfall for a short duration** probably half an hour or one hour resulting in flash floods in the mountainous areas and urban floods in the cities.

## Study on House Sparrows

### Why in News?

Recently, a study conducted by the **Wildlife Institute of India (WII)** emphasizes the unique bond between **house sparrows** and villagers in the high-altitude regions of the **Indian Himalayas**.

### Key Points

- The study found that the **house sparrow populations in Uttarakhand migrate with the local people**, leaving the deserted summer villages when the locals move down to their winter villages and returning when the villagers come back in the summer.
- The **study aims to understand the altitudinal movements and adaptation of house sparrows** to the cold climatic conditions in these high-altitude areas.

Note:



- **Adaptations of House Sparrows to High-Altitude Conditions:**
  - House sparrow populations in Uttarakhand are found to occur at altitudes as high as 3,500 meters, which is unique.
  - The study found that the **house sparrows of the high-altitude villages are larger in body size as an adaptation to the cold climatic conditions**, compared to sparrows of lower elevations.
- **Conservation Efforts and Awareness:**
  - To make **local people aware about sparrow conservation**, nest boxes have been distributed in many places, including Purola, Rudrapur, and Haridwar.
  - The study is **creating extensive awareness among local people** about the importance of house sparrow conservation, and many people are actively engaged in the effort, monitoring nest boxes and contributing to data collection.

#### House Sparrows



- **Scientific Name-** *Passer domesticus*
- **Conservation Status-** *Least Concern* on the Red List of The **International Union for Conservation of Nature (IUCN)**.
- **Habitat and Distribution:**
  - The house sparrow is widespread across the world, inhabiting every continent, **except Antarctica, China and Japan**. It is **native to Eurasia and North Africa**.
  - It is the **State bird of Bihar and Delhi**.

- It is known to **stay close to human habitations**, and is therefore among the most commonly found bird species in urban cities.
- Some of the **causes for decline in its population** are as follow:
  - Unfriendly architecture of our homes.
  - The use of chemical fertilisers in crops.
  - Noise pollution.
  - Exhaust fumes from vehicles.

## Road Leading to China Border Washed Away

### Why in News?

Recently, The **national highway linking Joshimath to the border villages of Malari and Niti** along the **Indo-China frontier** was destroyed at Miram.

### Key Points

- The blockade entirely stopped the movement of vehicles, especially **impacting Army and Indo Tibetan Border Police (ITBP)** convoys traveling towards the border.
- Over **100 roads, including many national highways, remain blocked** in the state due to **continuous rainfall** and frequent landslides, particularly in hilly areas.

### The Indo-Tibetan Border Police (ITBP)

- The ITBP is a specialized mountain force of India, which was established on **24<sup>th</sup> October 1962**, soon after the India-China war which was initially meant for deployment **along the India-China border**.
- ITBP was initially raised under the **Central Reserve Police Force (CRPF) Act, 1949**. However, in 1992, parliament enacted the **ITBP Act** and the rules were framed in 1994.
- However, over the years, ITBP has **also been deployed for various internal security duties, including anti-Naxal operations**. The force is known for its expertise in **high-altitude rescue and mountaineering operations**.

Note:



## Central Assistance to Manage Pilgrims

### Why in News?

The Uttarakhand government will seek help from the Centre through **Niti Aayog** to manage the large number of tourists.

### Key Points

- Uttarakhand, known for **spiritual tourism**, is facing a significant challenge with its **annual floating population increasing eight-fold**.
- The Uttarakhand government requested the Centre to include **compensation for damages** caused by **forest fires** and **high-voltage transmission line losses** in the **State Disaster Response Fund (SDRF)** norms in the **Union Budget**.
  - The state has **not received any allocation for green bonus or floating population**, despite being one of the **147 most landslide-prone districts** in the country.
  - Districts like Rudraprayag and Tehri had hoped for relief, such as the **establishment of glacier or landslide research centers**, but the **budget did not address these concerns**.

#### State Disaster Response Fund (SDRF)

- SDRF has been constituted under **Section 48 (1) (a)** of the **Disaster Management Act, 2005**.
- It was constituted based on the recommendations of the **13th Finance Commission**.
- It is the **primary fund available with the State governments** for responses to notified disasters to meet expenditure for providing immediate relief.
- It is audited by the **Comptroller and Auditor General of India (CAG)** every year.

## Doon Silk

### Why in News?

**Doon Silk** is a label under the **Uttarakhand Cooperative Resham Federation (UCRF)** that is committed to maintaining and restoring the **ancient silk-weaving traditions of Uttarakhand**.

### Key Points

- The brand offers a range of products made from **natural fibers** such as **silk, wool, cotton, bichhua (nettle), and hemp**, all selected for their minimal environmental impact.
  - Doon Silk's products are a testament to the talent and artistry of Uttarakhand's farmers, reelers, weavers, craftspeople, and dyers.
  - The brand's **dedication to quality and craftsmanship** has helped it achieve a **strong foothold in both national and global markets**.
- By concentrating on handloom methods, Doon Silk **maintains traditional techniques and provides sustainable job prospects** to more than 6,000 people in Uttarakhand.
- Doon Silk's **100% natural fiber guarantee** reflects its dedication to purity.

#### Uttarakhand Cooperative Resham Federation (UCRF)

- It was **founded in the year 2002, in Dehradun** with the purpose of carrying out the **post-cocoon activities of the Sericulture Department** of Uttarakhand.
- With over 20 years of experience, the organization has **revitalized the traditional silk weaving of Uttarakhand**, focusing on using wool and silk blended fabrics.
- UCRF and its brand Doon Silk **prioritize handloom production using natural fibers** like silk, wool, cotton, nettle, and hemp to **minimize harm to the environment and ecosystem**.

## Uttarakhand To Offer Jobs To Agniveers

### Why in News?

According to the **Uttarakhand Chief Minister** the state government is going to bring a proposal for the reservation of **Agniveers**.

### Key Points

- Agniveers from the state would be **given jobs in the government departments and the Police Department after they serve the nation**.

Note:

- On the occasion of **Guru Purnima**, the Chief Minister along with his mother **planted a tree** under the campaign '**Ek Ped Maa Ke Naam**'.
  - This campaign symbolises **respect for nature as well as for mothers**.

### Agnipath Scheme

- The term "**Agniveer**" translates to "Fire-Warriors" and is a **new military rank**.
- It is a scheme of **recruiting army personnel below officer ranks** such as **soldiers, airmen, and sailors** who are not commissioned officers to the **Indian Armed Forces**.
- They are recruited for a period of **4 years**, after which, **upto 25%** of these recruits (called Agniveers), can join the services on a **permanent commission** (another 15 years), subject to merit and organisational requirements.
- At present, **all sailors, airmen, and soldiers**, except the technical cadre of the medical branch, are recruited to the services under this scheme.

### Guru Purnima

- According to the Hindu calendar, Guru Purnima generally **falls on a full-moon day in the Hindu month of Ashadh**.
- It is dedicated to Maharshi Veda Vyasa, the sage **who is believed to have edited the sacred Hindu text, the Vedas and created the 18 Puranas, Mahabharata and the Srimad Bhagavatam**.
- For Buddhists, the **festival marks the first sermon of Lord Buddha**, which is said to have been delivered at Sarnath, Uttar Pradesh, on this very day.
- It is also believed to **mark the onset of monsoons**.

## Strict Laws Against Using Char Dham Names

### Why in News?

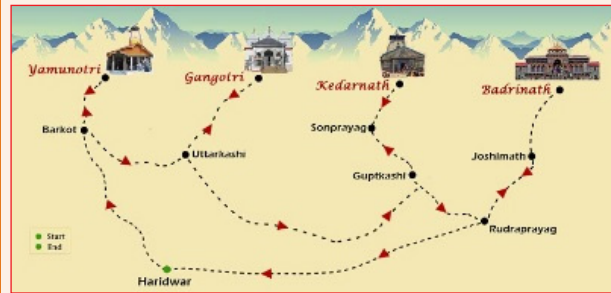
Recently, The **Uttarakhand Cabinet** decided to **implement strict laws against** organisations or trusts **using names of Char Dham temples** of the State.

### Key Points

- According to the officials, such trusts and organisations **create confusion among the general public**, and also **hurt local traditions and religious beliefs**.

- The Char Dham temples' priest association also launched a protest against laying the foundation stone for the replica of **Kedarnath temple** in Delhi.

### Char Dham



- **Yamunotri Dham:**
  - **Location:** Uttarkashi district.
  - **Dedicated to:** Goddess Yamuna.
  - River Yamuna is the second-most sacred river in India after River Ganga.
- **Gangotri Dham:**
  - **Location:** Uttarkashi district.
  - **Dedicated to:** Goddess Ganga.
  - Considered the most sacred of all Indian rivers.
- **Kedarnath Dham:**
  - **Location:** Rudraprayag district.
  - **Dedicated to:** Lord Shiva.
  - Situated on the bank of the Mandakini River.
  - One of the 12 Jyotirlingas (divine representations of Lord Shiva) in India.
- **Badrinath Dham:**
  - **Location:** Chamoli district.
  - Home to the sacred Badrinarayan Temple.
  - **Dedicated to:** Lord Vishnu.
  - One of the holy shrines for Vaishnavites.

## Hydel Project at Joshimath

### Why in News?

Recently, The **National Disaster Management Authority (NDMA)** stated that it has no objection allowing **NTPC (National Thermal Power Corporation)** to resume construction work at the **Tapovan-Vishnugad hydroelectric project site**.

Note:

### Key Points

- On 5<sup>th</sup> January, 2023 the state government had issued an order, **halting all works at the NTPC's Tapovan-Vishnugad project after the issue of land subsidence worsened in Joshimath.**
  - NDMA formed a group of multi-institutional expert organizations, including the **Central Building Research Institute, National Geophysical Research Institute, Geological Survey of India, Wadia Institute of Himalayan Geology, and IIT-Roorkee**, among others.
- In its report to the High Court, NDMA also stated that experts have listed many reasons for the land subsidence, the most common being that the **natural water flowing from Auli to Joshimath was interrupted due to unregulated construction in Joshimath town.**

#### National Thermal Power Corporation (NTPC)

- It is a **central Public Sector Undertaking (PSU)** under the Ministry of Power.
- It is **India's largest energy conglomerate** with roots planted way back in **1975 to accelerate power development in India.**
- It aims to **provide reliable power and related solutions in an economical, efficient and environment-friendly manner**, driven by innovation and agility.
- It became a **Maharatna company in May 2010.**

#### The National Disaster Management Authority (NDMA)

- It is India's **apex statutory body for disaster management.**
- It was **formally constituted on 27<sup>th</sup> September 2006**, by the **Disaster Management Act, 2005.**
  - The **Prime Minister is its chairperson** and it has nine other members. One of the **nine members is designated as Vice-Chairperson.**
- The primary responsibility for the management of disaster rests with the State Government concerned.
  - However, the National Policy on Disaster Management puts in place an enabling environment for all i.e., the Centre, state and district.

## Harela Festival 2024

### Why in News?

**Harela** is a Hindu festival celebrated in **Uttarakhand and some regions of Himachal Pradesh**, particularly in the **Kumaun region** with great enthusiasm.

### Key Points

- Harela falls on the **first day of Shraavan-Maas**, according to the **Hindu Luni-Solar calendar**, marking the **start of the monsoon season** and the planting of new crops.
  - This is an **important time for the state's agriculture** as it marks the "Harela," derived from the Kumaoni word "Hariyala," meaning "**Day of Green**," believed to have originated in the Kumaon region.
- The festival **Hariyali or Rihyali is celebrated in Kangra, Shimla, Sirmour, and Dakhra in the Jubbal and Kinnaur regions** of Himachal Pradesh, where people pray for a good harvest and prosperity.
  - The festival is associated with the **ceremonial celebration of the marriage between Lord Shiva and Goddess Parvati.**
  - This event is considered auspicious for farmers, as it **signifies the start of the planting season in their fields.**

## Encroachment on Glacier

### Why in News?

- Recently, **Baba Yogi Chaitanya Akash**, a self-proclaimed godman, **constructed an unauthorized shrine** at 5,000 meters on **Uttarakhand's Sunderdhunga glacier.**
- A joint team from revenue, forest, and police departments will investigate after local **villagers expressed anger over encroachment.**

### Key Points

- The self-proclaimed godman claimed that he was instructed by a divine power to build a temple on the mountain.
- The location is an **ecologically sensitive spot**, with a **sacred kund for pilgrims and locals.**
- People visit the Kund during the **Nanda Raj Yatra** every twelve years.

Note:

- It is a **well-known cultural and religious event in Uttarakhand**, famous for the pilgrims covering an extremely long distance on foot. The most recent **Nanda Raj Yatra took place in 2014**.
- An unauthorized temple built in an **ecologically sensitive and religiously significant area** has raised concerns about the local authorities and the Uttarakhand government's **anti-encroachment efforts** in sensitive zones.

#### Sunderdhunga Glacier

- The Sunderdhunga Glacier is situated on the **right side of the Pindar Valley**, approximately 24 kilometers beyond the village of Khati.
- It is considered a **more challenging trek** compared to the hikes to **Pindari and Kafni Glaciers**.
- It is located in Uttarakhand's **Bageshwar district**.

## Uttarakhand First in the Country in SDG 2023-24

### Why in News?

Uttarakhand secured the top position in [the Sustainable Development Goals \(SDG INDEX\) 2023-2024 report](#) released by **NITI Aayog**.

### Key Points

- According to the Chief Minister of Uttarakhand, the state government is committed to advancing towards a **'Developed Uttarakhand'** by **balancing ecology and economy**.
- The **SDG India Index** is a tool developed by **NITI Aayog** to measure and track India's progress towards the **SDGs set by the United Nations**.
  - The **Index supports the localization of SDGs**, encouraging states to integrate these goals into their development plans.
  - It serves as a **benchmark for policymakers** to identify gaps and prioritise actions towards achieving **sustainable development by 2030**.
- India's overall **SDG score improved to 71 in 2023-24 from 66 in 2020-21 and 57 in 2018**. All states have shown improvement in overall scores.
  - Progress has been largely driven by targeted government interventions in poverty reduction, economic growth, and climate action.

- **Top Performers: Kerala and Uttarakhand emerged as the best-performing states**, each scoring 79 points.
- **Lowest Performer: Bihar lagged behind** with a score of 57 points, **followed by Jharkhand** at 62 points.
- **Front-Runner States:** 32 states and union territories (UTs) are in the front-runner category, with 10 new entrants including **Arunachal Pradesh, Assam, Chhattisgarh, and Uttar Pradesh**.

#### NITI Aayog

- The **Planning Commission in India** was replaced by **NITI Aayog in 2015**, with a shift towards a **'Bottom-Up' approach** and emphasis on **cooperative federalism**.
  - The **composition of NITI Aayog** includes the Prime Minister as Chairperson, Chief Ministers of all states and Lt. Governors of Union Territories in the Governing Council, and experts nominated by the Prime Minister as Special Invitees.
  - **Chief Executive Officer** appointed by the Prime Minister for a specific term, holding the rank of Secretary to the Government of India.
- The **key objectives** are to promote cooperative federalism with states, develop plans at the village level, incorporate national security into economic strategy, focus on marginalised sections of society, encourage partnerships with stakeholders and think tanks, create a support system for knowledge and innovation, resolve inter-sectoral issues, and maintain a resource centre for good governance and sustainable development practices.

## Uttarakhand New Hydel Power Projects

### Why in News?

Recently, Uttarakhand Chief Minister Pushkar Singh Dhami sought the **clearance of 21 new hydel power projects** with a **capacity of 2123 MW for the state** from the Centre.

### Key Points

- The **Union Minister of Power** Manohar Lal Khattar is on a **visit to the state to review** the progress of **Tehri Hydro Power Complex** and various urban development projects in the state.

Note:



- According to the CM, only 40% of Uttarakhand's total capacity for **hydro electricity** generation is being utilised at present.
  - Expert committees have recommended the implementation projects on the **Alaknanda** and **Bhagirathi rivers** and their tributaries.



### Alaknanda River

- It is one of the headstreams of **the Ganga**.
- It rises at the confluence and feet of the **Satopanth and Bhagirath glaciers** in Uttarakhand.
- It meets the **Bhagirathi River at Devprayag** after which it is called the Ganga.
- Its main tributaries are the **Mandakini, Nandakini, and Pindar rivers**.
- The Alaknanda system drains parts of **Chamoli, Tehri, and Pauri districts**
- The Hindu pilgrimage center of **Badrinath** and the natural spring Tapt Kund lie along the banks of the Alaknanda River.

### Bhagirathi River

- It is a **turbulent Himalayan river** of Uttarakhand, and one of the two headstreams of the Ganges.
- The Bhagirathi rises at the foot of **Gangotri Glacier, at Gaumukh**, at an elevation of 3892m and fanning out into the 350 km wide Ganga delta, it finally empties into the Bay of Bengal.
- The **Bhagirathi and Alaknanda join at Devprayag in Garhwal** and are thereafter known as the Ganges.

## Uttarakhand's First Bird Gallery

### Why in News?

Recently, The **Uttarakhand Forest Department** established the **state's first bird gallery** at the Nature Education Centre, in **Dehradun**.

### Key Points

- This gallery displays **high-resolution images of birds in Uttarakhand**, providing visitors with a stunning showcase of the state's avian residents.
  - It is an attempt to **highlight Uttarakhand's avian diversity** and promote a greater appreciation for these unique species.
  - By **educating visitors about the numerous bird species and their functions** in the ecosystem, the gallery would **facilitate conservation and create awareness about these avian species**
- Uttarakhand has **over 710 bird species**, which is **more than 50% of India's bird species**.

## Uttarakhand Repopulation Measures

### Why in News?

Recently, **Uttarakhand's Rural Development and Migration Prevention Commission** submitted a report to the Chief Minister revealing that **11 villages near the Indo-China border** have no residents remaining.

### Key Points

- The report was submitted following a **ground survey of 137 border villages** in 2023.
  - Out Of the 11 villages, six are in **Pithoragarh district**- Gumkana, Lum, Khimling, Sagri Dhakdhauna, Sumatu, and Poting.
  - Three are in **Chamoli district**- Rewal Chak Kurkuti, Fagti, and Lamtol and two are in **Uttarkashi district**- Nelang and Jadung.
- The report submitted by the commission comprises several suggestions for the government, such as:
  - Promoting border tourism in those areas by **relaxing accessibility norms**.
  - **Providing 200 days' employment instead of 100 days** under the **MGNREGA program** in the border villages.
  - Develop the places situated near the 51 border villages identified as **'Vibrant Villages'** by the Centre.

Note:

### Vibrant Villages Programme

- It is a **Centrally sponsored scheme**, announced in the **Union Budget 2022-23 (to 2025-26)** for development of villages on the **northern border, thus improving the quality of life of people living** in identified border villages.
- It will cover the border areas of **Himachal Pradesh, Uttarakhand, Arunachal Pradesh, Sikkim and Ladakh**.
- It will cover 2,963 villages with 663 of them to be covered in the first phase.
- Vibrant Village Action Plans will be created by the district administration with the help of Gram Panchayats.
- There will **not be overlap with the Border Area Development Programme**.

### Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) Scheme

- Launched in **2005** by the Ministry of Rural Development, MGNREGA stands as one of the **world's largest work guarantee programs**.
- This initiative provides a legal guarantee, ensuring a **hundred days of employment each financial year** for adult members of any rural household.
- Participants engage in unskilled manual work related to public projects, earning the statutory minimum wage.

## Muslim Board to Challenge SC Ruling

### Why in News?

Recently, the **All India Muslim Personal Law Board** announced its plan to challenge the **Supreme Court's** recent ruling that permits **divorced Muslim women to claim maintenance after the 'Iddat' period**.

- The board also intends to challenge the newly enacted **Uniform Civil Code (UCC)** law in Uttarakhand.

### Key Points

- These decisions were made during a working committee meeting, under which eight resolutions were approved.
- One of the resolutions concerns the Supreme Court's judgment, which contradicts **Sharia law**.

- Recently, the Supreme Court unequivocally ruled that **Section 125 of the Code of Criminal Procedure (CrPC)** applies to all married women, including Muslims.
  - The court emphasized that **Indian men must unequivocally recognize the significance of homemakers** by providing unwavering **financial support**, such as **joint accounts and unfettered access to ATMs**.
- The board highlights that diversity is our country's identity, protected by **the Constitution**. The UCC aims to erase this diversity, challenging both constitutional and religious freedoms.
  - The legal committee is **preparing to challenge the UCC law enacted in Uttarakhand**.

### Section 125 of the CrPC

- Section 125 of the CrPC mandates that a **Magistrate of the first class** may order a **person with sufficient means to make a monthly allowance for the maintenance** of:
  - His wife, if she is unable to maintain herself.
  - His legitimate or illegitimate minor child, whether married or not, unable to maintain itself.
  - His legitimate or illegitimate adult child with physical or mental abnormalities or injuries that render them unable to maintain themselves.
  - His father or mother, unable to maintain themselves.

### Iddat Period

- A divorced Muslim woman is **entitled to a reasonable and fair provision and maintenance** from her former husband, to be paid within the **iddat period**.
- **Iddat is a period, usually of three months**, which a woman must observe after the death of her husband or a divorce before she can remarry.

## Uttarakhand Breaks Rainfall and Heat Records

### Why in News?

As per a **report by Climate Trends**, Uttarakhand has been witnessing **extreme weather events** for the past two months, ranging from record breaking temperatures to extremely heavy rainfall triggering **flash floods and landslides**.

Note:

## Key Points

- The rise in global average temperatures has increased **atmospheric moisture**, leading to the **formation of intense clouds** and triggering heavy rains.
  - As temperatures continue to rise, these **intense rain events** are likely to become more common.
- In Uttarakhand, the **warming temperature trend is worsening forest fire** events to a greater extent.
- **Human-caused climate change is influencing weather** and climatic extremes in higher elevation places, and many recent studies have reported on the increasingly prevalent **Elevation-Dependent Warming (EDW)**.
- EDW influences the **Himalayan rivers and glaciers** (changes in the glacial mass balance, river discharge, snowfall), which is the only water source for the hilly region's livelihood.

### Flash Floods

- These are **sudden surges in water levels** generally during or following an intense spell of rain.
- These are **highly localised events of short duration** with a very high peak and usually **have less than six hours** between the occurrence of the rainfall and peak flood.
- The **flood situation worsens** in the presence of **choked drainage lines** or encroachments obstructing the natural flow of water.

## Earthquake in Chamoli


### Why in News?

Recently, an **Earthquake** hit the **Chamoli region of Uttarakhand** with its **epicentre** near the town of **Joshimath**.

## Key Points

- According to the **National Center for Seismology**, the earthquake had a **magnitude of 3.5 on the Richter scale** and came amid heavy rainfall and landslides in the region.

# EARTHQUAKE



### ABOUT

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

### 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

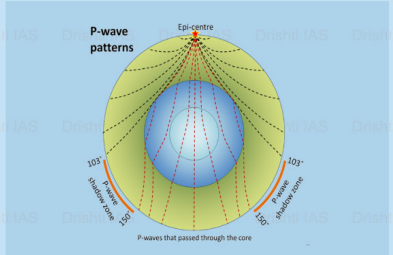
- **Circum-Pacific Belt** - 81% of earthquakes
- **Alpide Earthquake Belt** - 17% of the largest earthquakes
- **Mid-Atlantic Ridge** - Mostly submerged underwater

### HYPOCENTER

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

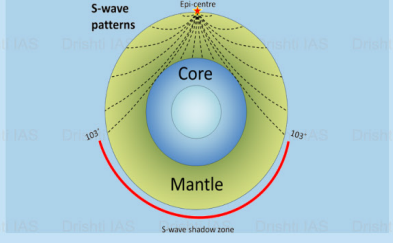
### EPICENTER

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



P-wave patterns

P-waves that passed through the core

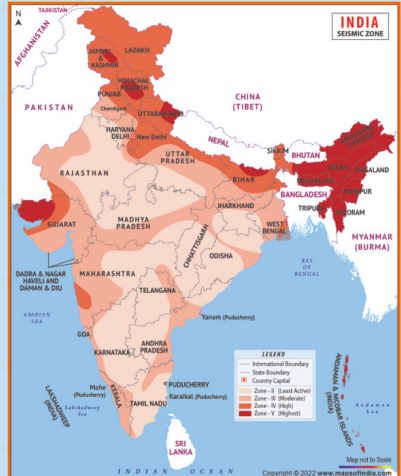


S-wave patterns

S-wave shadow zone

### 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)**




INDIA SEISMIC ZONE

LEGEND: International Boundary, State Boundary, Country Capital, Zone-II (Least Active), Zone-III (Moderate), Zone-IV (High), Zone-V (Highest)

Map not to Scale

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Drishti IAS

Note:

### Joshimath

- Joshimath is a hilly town located on the **Rishikesh-Badrinath National Highway (NH-7)** in Chamoli district of Uttarakhand.
- The city serves as a **tourist town** as it acts as an **overnight rest stop** for people visiting **Badrinath**, **Auli**, **Valley of Flowers**, and **Hemkund Sahib**, among other important religious and tourist locations in the state.
- Joshimath is also of great strategic importance to **the Indian armed forces** and is home to one of the **Army's** most important cantonments.
- The town (fall in **high-risk seismic Zone-V**) is traversed by running streams with a high **gradient** from **Vishnuprayag**, a confluence of the **Dhauliganga** and the **Alaknanda rivers**.

## Landslide in Dharachula

### Why in News?

Recently, A severe **landslide** has completely **blocked the road to Dharachula** in Pithoragarh district of Uttarakhand.

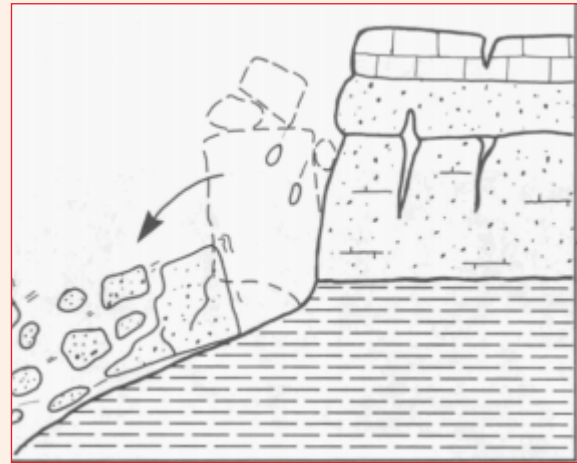
- Due to **heavy rain**, six highways and 96 roads are closed in Uttarakhand. Landslides have blocked 47 rural roads.

### Key Points

- **Heavy rainfall causes landslides and accidents**, posing a significant challenge for Uttarakhand every monsoon.
  - In 2023, nearly 100 people died and many went missing from June to September.
- The CM Pushkar Dhama called for a **safety audit of all transformers during the monsoon** and urged for **rapid development of industrial institutions in the state to boost power generation**.

### Landslide

- A **landslide** is defined as the **movement of a mass of rock, debris, or earth down a slope**.
- They are a **type of mass wasting**, which denotes any downward movement of soil and rock under the direct influence of gravity.
- The term landslide encompasses **five modes of slope movement: falls, topples, slides, spreads, and flows**.



### Causes:

- Slope movement occurs **when forces acting downward** (mainly due to gravity) exceed the strength of the earth materials that **compose the slope**.
- Landslides are caused due to three major factors: **geology, morphology, and human activity**.
  - **Geology** refers to characteristics of the material. The earth or rock might be weak or fractured, or different layers may have **different strengths and stiffness**.
  - **Morphology** refers to the **structure** of the land. For example, slopes that lose their vegetation to fire or drought are more vulnerable to landslides.
    - Vegetation holds soil in place, and without the root systems of trees, bushes, and other plants, the land is more likely to slide away.
  - **Human activity** which includes agriculture and construction increases the risk of a landslide.

### Landslide-Prone Areas:

- The entire **Himalayan** tract, hills/mountains in **sub-Himalayan terrains** of North-east India, **Western Ghats**, the **Nilgiris** in Tamil Nadu Konkan areas are landslide-prone.

## Uttarakhand's Old Lipulekh Pass

### Why in News?

The **old Lipulekh Pass**, located at an altitude of 18,300 feet in the **Vyas Valley** of Pithoragarh district in

Note:

Uttarakhand, will be accessible to the public from 15th September 2024.

- It would allow devotees to view the **sacred Kailash Peak** in Tibet from within the Indian territory.

### Key Points

- The **Kailash-Mansarovar Yatra** via the Lipulekh pass was **suspended in 2019 following the Covid-19 outbreak** and the route has yet to be opened by the Chinese authorities.
- This sacred trek leads devotees and adventurers to **Mount Kailash and Lake Mansarovar**, located in the **Tibet Autonomous Region** of China.
- The **pilgrims** will be able to drive up to Lipulekh from Dharchula. From there, they will need to traverse approximately 800 meters on foot to reach the vantage point for viewing the Kailash peak.
- The pilgrims can now also have a view of **Om Parvat** from within the Indian territory.

#### Kailash Mansarovar

- The Kailash range's supreme peak lies in the **Chinese-occupied Tibet** at the height of **6,675 meters**.
- The pilgrimage to **Kailash** and to the sacred **Mansarovar** lake that lies 30 km to its south, is run exclusively by a government organization, the **Kumaon Mandal Vikas Nigam (KMVN)**.
  - The organization works in collaboration with the Government of India's Ministry of External Affairs and the Government of China.

## Avalanche Hits Gandhi Sarovar

### Why in News?

Recently, a massive **avalanche** hit the **Gandhi Sarovar** located four kilometres above the **Kedarnath Dham**.

- It occurred near the **Chorabari glacier** that **fell into the valley** but there was no loss of life or property.

### Key points

- The avalanche occurred in the **upper region of the Gandhi Sarovar in Chorabari glacier**, below the snow-covered **Meru-Sumeru mountain** range located at the upper end of Kedarnath valley.

- In 2022, three avalanches hit the area in the months of September and October.
  - Five such incidents of avalanches were reported in the Chorabari glacier in May and June 2023.
- Following this, scientists from the **Indian Institute of Remote Sensing** and the **Wadia Institute** took stock of the entire situation by **conducting terrestrial and aerial surveys of the area**.
- The team of scientists **described these incidents as "normal"** in the Himalayan region, but they emphasised on **improving security in the Kedarnath Dham area**.

#### Chorabari Glacier

- Also known as the Chorabari Bamak Glacier lies in the **Garhwal Himalayan region of Uttarakhand**.
- The **Mandakini River** emerges from the Chorabari Glacier.

#### Avalanche

- An avalanche is a sudden, rapid flow of **snow, ice, and debris down** a mountain or slope.
- It can be triggered by various factors such as heavy snowfall, rapid temperature changes, or human activity.
- Many regions that are prone to avalanches **have specialized teams that monitor and control avalanche risks** by using various methods such as explosives, snow barriers, and other safety measures.

#### Wadia Institute of Himalayan Geology (WIHG)

- The Wadia Institute of Himalayan Geology is an **autonomous research Institute of the Department of Science & Technology**.
- **Established in June, 1968** as a small nucleus in two rooms of the Botany Department, Delhi University, the Institute was shifted to DehraDun during April, 1976.

## Master Plan to Upgrade Facilities at Badrinath Temple

### Why in News?

According to the **Uttarakhand** Chief Minister Pushkar Singh Dhami, a **master plan of Rs 424 crore** has been prepared for the **upgradation of facilities at Badrinath temple** in the state.

Note:

### Key Points

- Badrinath temple is situated in the town of Badrinath in the state and it is one of the **Char Dham pilgrimage sites**.
- There are many religious sites in Uttarakhand and their location in the **Himalayan region**, which is **ecologically sensitive, poses a great challenge for the government to address environmental concerns** and the need for better facilities for the pilgrims who arrive from across the country.
- During the meeting, the Chief Minister requested that the Union Minister start the process of expanding

**Pantnagar Airport in Udham Singh Nagar** district soon.

- Also requested to expedite the process of granting permission for the expansion of **Jolly Grant Airport in Dehradun** and giving the airport the status of an international airport.

#### Badrinath Temple

- The temple is also one of the **108 Divya Desams dedicated to Vishnu holy shrines** for Vaishnavas who is worshipped as Badrinath.
- It is situated along the **banks of Alaknanda river**, in **Chamoli district** of Uttarakhand.



Note:



