Cloudbursts

Why in News

Recently, cloudbursts have been reported from several places in India.

Key Points

- **About:**
  - Cloudbursts are **short-duration, intense rainfall events over a small area.**
  - It is a weather phenomenon with unexpected **precipitation exceeding 100mm/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 millimetres 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.
- **Cloudburst are Different from Rainfall:**
  - Rain is condensed water falling from a cloud while cloudburst is a sudden heavy rainstorm.
  - Rain **over 100mm per hour is categorised as a cloudburst.**
  - The cloudburst is a natural phenomenon, but occurs quite unexpectedly, very abruptly, and rather drenching.

- **Impact of Climate Change:**
  - Several studies have shown that climate change **will increase the frequency and intensity of cloudbursts** in many cities across the globe.
    - In May 2021, the **World Meteorological Organization** noted that there is about **a 40% chance of the annual average global temperature temporarily reaching 1.5°C above the pre-industrial level** in at least one of the next five years.
    - It added that there is **a 90% likelihood of at least one year between 2021 and 2025 becoming the warmest on record and dislodge 2016** from the top rank.
  - It is seen that **more cloudbursts are happening in Himalayan region because the decadal temperature rise** in the Himalayan region is higher than the global rate of rising temperatures.
- **Consequences of Cloudbursts:**
  - **Flash floods.**
  - **Landslides**
  - Mudflows
  - Land caving.
- **Prediction:**
  - There is **no satisfactory technique** for anticipating the occurrence of cloud bursts because they develop over a small period of time.
  - **A very fine net work of radars is required** to be able to detect the likelihood of a cloud burst and this would be expensive.
  - Only the areas likely to receive heavy rainfall can be identified on a short range scale. Much of the damage can be avoided by way of identifying the areas and the meteorological situations that favour the occurrence of cloud bursts.

Source: IE