

DISASTER MANAGEMENT

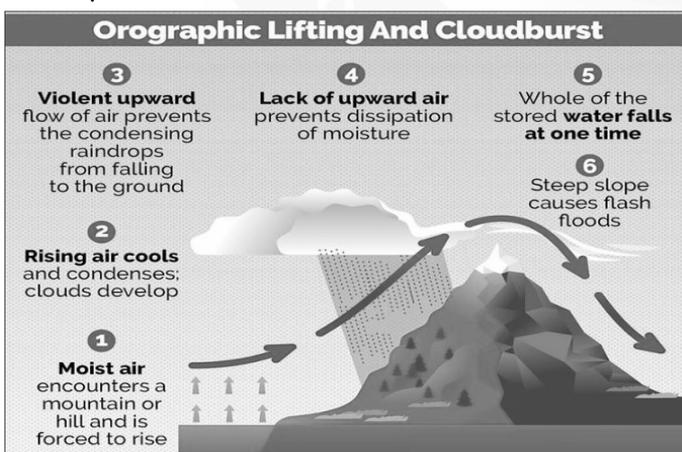
What are cloudbursts?

- A cloudburst is a localised but intense rainfall activity. Short spells of very heavy rainfall over a small geographical area can cause widespread destruction, especially in hilly regions where this phenomenon is the most common.
- Not all instances of very heavy rainfall, however, are cloudbursts. A cloudburst has a very specific definition: Rainfall of 10 cm or more in an hour over a roughly 10 km x 10-km area is classified as a cloudburst event. By this definition, 5 cm of rainfall in a half-hour period over the same area would also be categorized as a cloudburst.



What causes this?

- Cloudbursts happen when saturated clouds are unable to produce rain because of the upward movement of very warm current of air.



- Instead of dropping down, raindrops get bigger in size and get pushed up due to the air current.
- Eventually they become too heavy to hold and drop down, leading to more rain than usual.
- There isn't a 'burst' in the literal sense, but an intense version of a torrential downpour that happens.

Instances of Cloudburst:

- Mumbai had experienced on July 26, 2005, which is one of the most extreme instances of rainfall in India in recent years. At that time, Mumbai had received 94 cm of rain over a 24-hour period, resulting in deaths of over 400 people and more than USD 1 billion in economic losses.
- In 2010, dozens of villages and the main town of Leh in Ladakh were hit by the worst floods in its recent history. Homes and farm fields were devastated and over 250 people were killed.

Global warming is leading to more evaporation of water and because of this dense cumulonimbus clouds are forming, resulting in intense rainfall.

Can cloudbursts be forecast?

- The India Meteorological Department forecasts rainfall events well in advance, but it does not predict the quantum of rainfall — in fact, no meteorological agency does.
- The forecasts can be about light, heavy, or very heavy rainfall, but weather scientists do not have the capability to predict exactly how much rain is likely to fall at any given place.
- Additionally, the forecasts are for a relatively large geographical area, usually a region, a state, a meteorological sub-division, or at best a district. As they zoom in over smaller areas, the forecasts get more and more uncertain.
- Theoretically, it is not impossible to forecast rainfall over a very small area as well, but it requires a very dense network of weather instruments, and computing capabilities that seem unfeasible with current technologies.

Impacts:

- Experts say excessive deforestation and unplanned developments should be avoided in climate-vulnerable regions such as the Himalayas.