Mount Marapi Cold Lava

Why In News

- In a devastating aftermath of **torrential rain and volcanic activity**, western Sumatra, Indonesia is reeling from the destruction of over 100 homes and buildings. **Mount Marapi, known locally as the "Mountain of Fire,"** unleashed a cascade of floods, mudslides, and cold lava, leading to a catastrophic disaster that has claimed over 40 lives, with many still missing.
- The disaster struck four districts near **Mount Marapi's base**, triggered by heavy monsoon rains that overwhelmed river banks, transforming peaceful landscapes into treacherous torrents of cold lava and mud.

What Is Cold Lava

- **Cold lava, or "lahar,"** descended swiftly from Mount Marapi, akin to a lethal river of wet concrete, claiming everything in its path. The **United States Geological Survey** warns that cold lava can be more destructive than molten lava, burying and crushing everything it encounters with relentless force.
- Unlike the **fiery rivers of molten lava** that erupt during volcanic eruptions, cold lava is a blend of volcanic material, debris, and water that behaves more like a fast-moving landslide.

- This **phenomenon occurs** when water interacts with volcanic ash and debris on the slopes of a volcano, creating a dense mixture that flows downhill with surprising speed and destructive power.
- **The term "cold lava"** is somewhat misleading, as it suggests a substance that has cooled down like solidified lava. In reality, cold lava remains hot internally due to chemical reactions within the volcanic material, but its external appearance and behaviour are more akin to wet concrete.

- This **flowing mass can travel far from the volcano's summit**, driven by gravity and the sheer volume of material displaced during an eruption or heavy rainfall.
- One of the defining characteristics of cold lava is its ability to pick up additional debris and sediment as it travels downhill. This mixture can rapidly increase in volume and destructive potential, transforming from a relatively innocuous flow into a powerful force capable of devastating everything in its path.
- The **rapid speed and unpredictability of cold lava** make it particularly dangerous to nearby communities, as it can overwhelm settlements and infrastructure with little warning.

- Studies by the **United States Geological Survey** (USGS) have highlighted the unique hazards posed by cold lava. Unlike traditional lava flows, which move slowly and give residents time to evacuate, cold lava can advance rapidly, burying or crushing anything in its way.
- Its high **density and abrasive nature** mean that it can cause significant damage to buildings, bridges, and roads, posing a serious threat to human life and property.

Why Is Mount Marapi Called The Mountain Of Fire

- **Mount Marapi** is among the most active of Indonesia's 127 volcanoes.
- Marapi translates from the local **Minang language as "Mountain of Fire".**
- It stands at 2,891 metres (9,485 feet) above sea level.
- It last erupted in December 2023 when a huge cloud of volcanic ash spread widely across the sky.