Cyclone Akvan

Mains: *GS I | Geography*

Why in News?

Recently, Cyclone Akvan struck the North Andhra Pradesh and South Odisha coast near Gopalpur after weakening from a severe cyclonic storm.

How do tropical cyclones form in the Bay of Bengal?

- **Warm Sea Surface Temperatures -** When ocean surface water stays above roughly **26.5°C**, warm, moist air rises rapidly from the sea, creating a zone of low air pressure near the surface.
- **Spin from Earth's Rotation -** Surrounding air rushes into this low-pressure center and begins spiraling counterclockwise in the Northern Hemisphere due to the **Coriolis force**.
- **Energy Release -** As rising water vapor cools and condenses into heavy rain clouds, it releases massive amounts of latent heat, which warms the core of the storm and keeps pulling in more air—intensifying winds until the system hits land and loses its ocean moisture supply.

Why did Andhra Pradesh face three cyclones in less than a month?

- Akvan became the **third consecutive cyclone** to impact Andhra Pradesh within less than a month, following **Cyclone Arnab** and **Cyclone Murasu**.
- According to meteorological records, this marked the first time since **1987** that the state experienced three back-to-back cyclones in a single month, highlighting how seasonal sea conditions and large-scale climate drivers can trigger rapid storm clustering in the Bay of Bengal.
- **Peak Post-Monsoon Cyclone Window (October-December)**
    - After the Southwest Monsoon withdraws, the Bay of Bengal becomes calm and heats up rapidly.
    - Meanwhile, prevailing steering winds during October and November naturally push storms westward and northwestward straight toward the **Andhra Pradesh, Tamil Nadu, and Odisha** coastlines.
- **El Niño and Basin-Wide Ocean Warming**
    - Both **1987** and **2026** coincided with **El Niño** conditions, which alter wind circulation and atmospheric pressure patterns across the Indo-Pacific.
    - Persistent warmth in the Bay of Bengal allows the sea to replenish its heat quickly even after one storm passes, enabling back-to-back low-pressure systems to organize.
- **Rapid Recharge of Sea Surface Heat**
    - Normally, a passing cyclone churns up cooler water from deeper layers, temporarily cooling the ocean surface. When warm upper-ocean water is deep enough, the Bay stays warm enough to fuel another storm within days.
- **Akvan Weakened Just Before Landfall**

- Although Akvan intensified into a **Severe Cyclonic Storm** over the west-central Bay of Bengal, the intrusion of **cold, dry air** and stronger **vertical wind shear** near the coast disrupted its structure causing it to weaken before crossing near Gopalpur.

Sequence of the 3 Cyclones

Cyclone Name	Period	Region Affected	Key Impact Highlights
Cyclone Arnab	Late October 2026 (Oct 27–28)	Andhra Pradesh coast	Very severe cyclonic storm; triggered heavy rain, high winds, and initial coastal damage
Cyclone Murasu	Early November 2026 (Nov 3)	Coast between Nellore and Narasapur	Severe cyclonic storm; compounded damage to crops, power lines, and roads alongside Arnab (15 lives lost across the first two storms)
Cyclone Akvan	Mid-November 2026 (Nov 15–20)	North Andhra Pradesh & South Odisha (near Gopalpur)	Reached Severe Cyclonic Storm intensity at sea but weakened before landfall; early evacuations of over 3 lakh people prevented casualties

Why the Bay of Bengal is more Cyclone-prone than the Arabian sea?

- **Land-Locked Geography-** Being surrounded by land on three sides, the Bay of Bengal traps heat more easily and warms faster than the more open Arabian Sea.
- **Freshwater Inflow from Major Rivers -** Huge volumes of freshwater from the Ganga, Brahmaputra, Mahanadi, Godavari, and Krishna create a lighter top layer of water that resists mixing with cooler deep water keeping surface temperatures warm.
- **Inflow of Remnant Systems-** Low-pressure remnants often drift westward from the South China Sea and Andaman Sea into the Bay of Bengal, where they re-intensify.

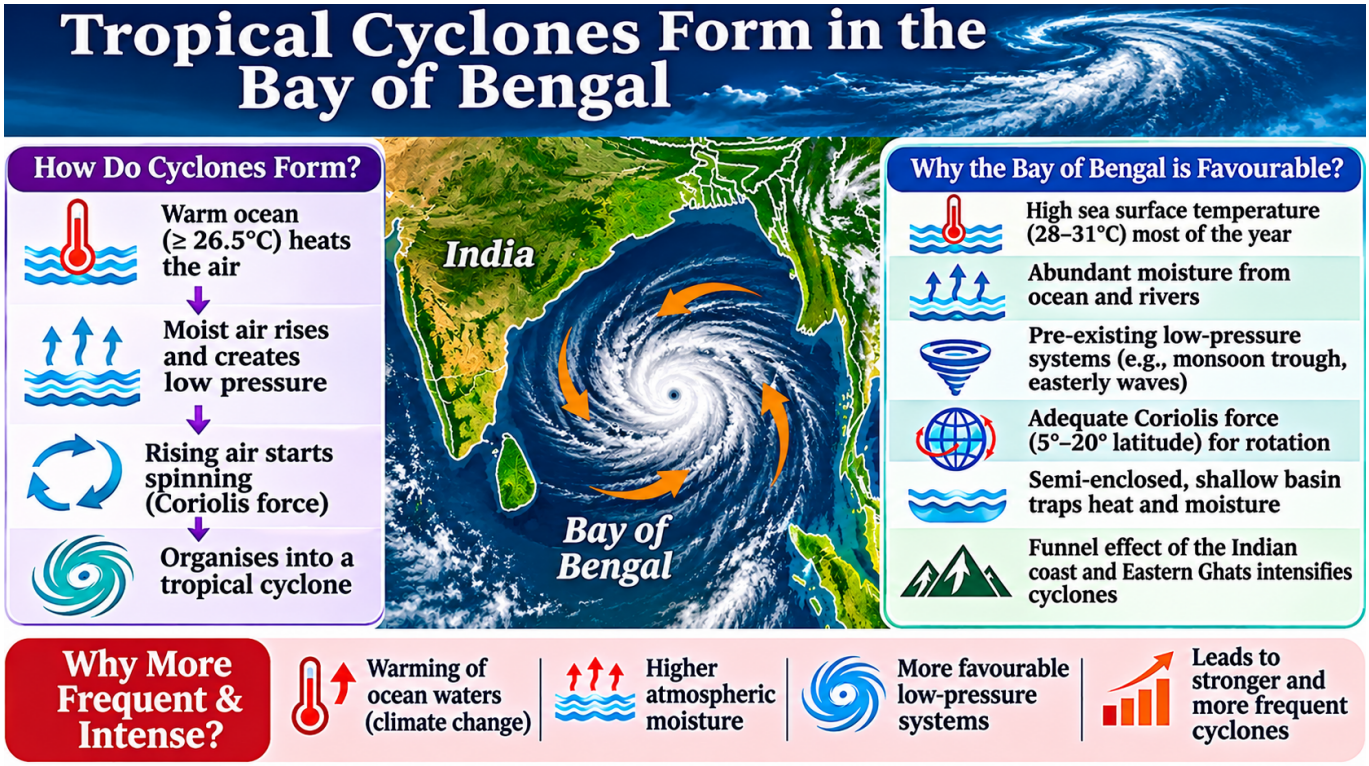
What are the key disaster management challenges of back-to-back cyclones?

- **Compounded Infrastructure Fatigue -** When consecutive storms strike within weeks, damaged power grids, embankments, roads, and drainage channels have no time to be fully repaired before the next hit.
- **Cumulative Agricultural Losses-** Standing Kharif and early Rabi crops suffer repeated waterlogging and wind damage, increasing financial stress on farmers.
- **Emergency Response Strain -** Disaster response teams (NDRF, SDRF), local administrations, and coastal communities face sustained operational fatigue from repeated evacuations and relief cycles.

What is the way forward?

- Prioritize underground power cabling in cyclone-prone towns, stronger storm-surge embankments, and reinforced drainage systems that withstand repeated storms.
- Continue leveraging real-time governance systems, voice alerts for fisherfolk, and targeted district warnings—which helped evacuate over 3 lakh people safely ahead of Akvan.

- Restore mangrove belts and coastal shelterbelts, which act as natural speed-breakers against wind and storm surges.
- Use satellite and drone mapping to speed up compensation for farmers hit by consecutive weather shocks.



Reference

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