Cyclone Fani - An Unusual Storm

What is the issue?

- A powerful cyclonic storm named Fani is headed towards the Odisha coast.
- As a cyclone in Bay of Bengal in April-May season, of this nature, is unusual, it is essential to understand the causes.

How do tropical cyclones form?

- Cyclones are formed over slightly warm ocean waters.
- It depends on the temperature of the top layer of the sea, up to a depth of about 60 metres.
- This has to be at least 28°C to support the formation of a cyclone.
- This explains why the April-May and October-December periods are conducive for cyclones.
- Secondly, the low level of air above the waters needs to have an 'anticlockwise' rotation in the northern hemisphere and vice versa.
- During these periods, there lies the Inter-Tropical Convergence Zone (ITCZ) (a low pressure zone) in the Bay of Bengal region, which shifts with seasons.
- The southern boundary of the zone experiences winds from west to east and the northern boundary from east to west.
- The ITCZ and the resultant wind pattern induce the anticlockwise rotation of air.
- Once formed, cyclones in this area usually move northwest.
- As it travels over the sea, the cyclone gathers more moist air from the warm sea, and adds to its strength.

How prevalent are tropical cyclones in India?

- Cyclones are a normal event in the eastern coast of India.
- On an average, five to six significant cyclonic storms emerge in the Bay of Bengal region every year.
- The prime seasons for tropical cyclones are

    i. the months of April and May, just before the start of the summer monsoon
    ii. October to December, immediately after the end of the summer

monsoon

- Cyclones emerging in April-May are usually much weaker than those during October-December.
- Most of the cyclones in April-May move northeast to hit Bangladesh, Myanmar or other countries in the Southeast Asian region.
- There have been only 14 instances of a “severe cyclone” forming in the Bay of Bengal region in April since 1891.

Why are Oct-Dec cyclones more strong?

- A thumb rule for cyclones is that the more time they spend over the seas, the stronger they become.
- [E.g. Hurricanes around the US, which originate in the vast open Pacific Ocean
- They are usually much stronger than the tropical cyclones in the Bay of Bengal, a relatively narrow and enclosed region.]
- In India, cyclones in October-December are usually remnants of cyclonic systems that emerge in the Pacific Ocean.
- They manage to come to the Bay of Bengal, considerably weakened after crossing the Southeast Asian landmass near the South China Sea.
- However, these systems already have some energy, and gather momentum as they traverse over the Bay of Bengal.
- Notably, April-May is not the season for typhoons in the west Pacific Ocean.
- Most of the typhoons, in northern hemisphere, form between June and November.
- So cyclones in April-May originate in situ in the Bay of Bengal itself.
- This is barely a few hundred kilometres from the Indian landmass, and hence the cyclones are relatively weaker.

How and why is Fani different?

- Tropical cyclones in the Bay of Bengal are graded according to maximum wind speeds at their centre as follows:

    1. depressions - 30 to 60 km per hour (kph)
    2. cyclonic storms - 61 to 88 kph
    3. severe cyclonic storms - 89 to 117 kph
    4. very severe cyclonic storms - 118 to 166 kph
    5. extremely severe cyclonic storms - 167 to 221 kph
    6. super cyclones - 222 kph or higher

- Fani is now categorised as an “extremely severe cyclone”.
- It is expected to generate storms with wind speeds as high as 200 km per

hour.

- It has the potential to cause widespread damage in Odisha and neighbouring states.
- Given the above discussed reasons, a cyclone of this nature is unusual for April-May cyclones in India.
- Fani is different mainly on account of its place of origin, and the route it has taken.

- **Origin** - The in situ cyclonic systems in the Bay of Bengal usually originate around latitude 10° N (in line with Chennai).
- But Fani originated quite close to the Equator, around latitude 2° N, well below the Sri Lankan landmass.
- The forecast landfall on the Odisha coast is at a latitude of almost 20°N.
- As it has originated very close to the Equator, it has taken a long route to reach the landmass.
- Resultantly, it has traversed a long way on the sea, and thus gained more strength.
- **Route** - Fani was initially headed north-westwards, towards the Tamil Nadu coast.
- But it changed its course midway and moved northeast away from the coastline to reach Odisha.
- The recurve it has taken gave it more time over the sea and has ensured that it has gathered unusual strength.

Source: Indian Express

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