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**MAD- 2020**  
**GEOGRAPHY**  
**Day - 51**

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**Question:**

(a) Discuss the concept of “Recurving Cyclones”.

(b) Extremely Severe Cyclonic Storm “Fani” was the strongest tropical cyclone to strike the Indian state of Odisha last year. It has frequently been termed as a “Unique Cyclone”. Cite the reasons for the same.

**Answer:**

**PART - A**

**Introduction**

Special terms are frequently used to describe a tropical cyclone's motion and its large-scale environmental pattern on a synoptic weather chart. One of the frequently used term is **Recurving cyclone**.

**The Concept of Recurving Cyclones:**

In Northern Hemisphere, curvature of a tropical cyclone is defined as the situation when a tropical cyclone transits from a mainly westward track to a northward and sometimes even an eastward track. This is due to air currents in the local atmosphere that push cold air from the poles towards the equator and interfere with cyclone formation. That’s what make them ‘re-curving.’ In the southern hemisphere, the cyclones spin clockwise and therefore also re-curve in the opposite direction.

**Indian Context**

The cyclone ones that typically strike the Indian neighbourhood in the northern hemisphere rotate anticlockwise. Their normal behaviour is to derive strength from the moisture in waters such as the Bay of Bengal, move west, incline in a northerly direction and peter out into the sea or land, depending on their origin. On its way to diminish if cyclone gets a sort of second wind by deflected right or eastwards is known as re-curving cyclones. This is due to air currents in the local atmosphere that push cold air from the poles towards the equator and interfere with cyclone formation. In the southern hemisphere, the cyclones spin clockwise and therefore also re-curve in the opposite direction.

**Example:**

**Ockhi:**

The whirlwind that arose in the Bay of Bengal and revved up over Sri Lanka was expected to pass over Lakshadweep and then ease into the Arabian Sea, far away from India’s west coast. However, the cyclone ended up sharply swerving into parts of Maharashtra and Gujarat.

**Impact of Re-curving cyclones on monsoon**

During the monsoon months, cyclones in the Western Pacific move westwards towards India and aid the associated rain-bearing systems over the country. However, in the years of a re-curve, they do not give as much of a push to the rain as they do in the good monsoon years.

**Conclusion**

As climate change is projected to increase the frequency of extreme events, scientists have warned that tropical cyclones are likely to get more intense, and this could mean more scrutiny of recurving ones. A challenge with re-curving cyclones is that it is hard for weather models to pick them early on and so they pose unique challenges in terms of hazard preparedness and disaster management.

## **PART - B**

### **Introduction**

Tropical cyclones in the Bay of Bengal are graded according to maximum wind speeds at their centre. Fani was categorised as an “extremely severe cyclone” because of the wind speed of 167 to 221 kph. Fani was the strongest tropical cyclone to strike the Indian state of Odisha since the 1999 Odisha cyclone. The name of the Cyclone 'Fani', pronounced as 'Foni' was suggested by Bangladesh.

### **Why is Cyclone Fani Unique?**

#### **Place of origin:**

Cyclonic systems in the Bay of Bengal usually originate around latitude 10°, in line with Chennai or Thiruvananthapuram. Fani, on the other hand, originated quite close to the Equator, around latitude 2°, well below the Sri Lankan landmass.

#### **Lifespan:**

Tropical cyclones over the Bay of Bengal have a lifespan of four-seven days, but since Fani 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, which allowed it to gather a lot of moisture and momentum, resulting in strong winds.

#### **Route:**

Fani was initially headed northwestwards, towards the Tamil Nadu coast but 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. If it had remained on its original course, and made a landfall over the Tamil Nadu coastline, Fani would only have been a normal cyclone, not the extremely severe cyclone it has now become.

#### **Timing:**

Cyclones emerging in April-May usually are much weaker than those during October - December. It started developing in April, a month that has historically seen very few cyclones that were categorised as extremely severe.

#### **Conclusion:**

According to the IMD, in the past 126 years only 14 severe tropical cyclones have formed in April over the Bay of Bengal. Out of those, only one storm crossed the Indian mainland. Cyclone Fani was the second storm to form in April and cross the mainland.