

Shifting Monsoon Patterns

Why in news?

The India Meteorological Department (IMD) has said that the monsoon has begun to retreat from Rajasthan in late September this year.

What is monsoon?

- The seasonal reversal of wind direction during a year accompanied by corresponding changes in precipitation.
- The monsoon or southwest monsoon is a sea-breeze from the Arabian Sea and the Bay of Bengal that officially onsets over Kerala on June 1 and retreats from Rajasthan by the end of September.
- It is then replaced by the retreating, or northeast monsoon in November which is the key source of rainfall for several parts of Tamil Nadu, Andhra Pradesh and north interior Karnataka.

What is monsoon withdrawal?

- The cyclonic systems that fuel the monsoon is replaced by an 'anti-cyclone' circulation which causes dry and windless condition to prevail over western and northern India.
- This cessation of rainfall activity over northwest India for straight five days is the withdrawal of the monsoon.

How was the monsoon in India this year?

- Central India and the southern peninsula were expected to get 6% more than their historical average but saw a sharp surge in rainfall.
- Rains in Central India were surplus by 20% and in southern India by 25%.

Why excessive rains in southern and central India?

- These heavy rains are due to **La Nina**, characterised by cooler than normal sea surface temperatures in the central Pacific.
- India is experiencing **triple dip La Nina**, thus having a surplus rain in September, a month that usually marks the retreat of the monsoon.

What is triple dip La Nina?

- The extended spell of La Nina lasting across three winter seasons in the northern hemisphere is called 'Triple dip La Nina'.

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| El Nino | La Nina |
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| Warmer sea surface temperature in the central pacific ocean. | Cooler than normal sea surface temperatures in the central pacific ocean. |
| Causes reduced rains over India. | Causes excessive rains over India. |

What are the impacts of surplus monsoon rains?

- **Floods** - There were several instances of flooding in Kerala, Karnataka and Madhya Pradesh.
- **Droughts** - On the other hand, large parts of U. P., Bihar, and Odisha have seen large deficits.
- **Impacts on summer crops** - Impacts the sowing of the kharif (summer crops).
- Impacts planting of paddy and reduces its sown area.
- It is expected a shortfall in rice production and is likely to elevate inflation.

Are monsoon patterns changing?

- India is witnessing excessive rainfall in the monsoon since 2019 except last year.

| Year | June -September | September |
|------|-------------------|------------------------|
| 2019 | 10% more | 52% more |
| 2020 | 9% more | 4% more |
| 2021 | 1% less | 35% more |
| 2022 | 6% surplus so far | Surplus rain expected. |

- According to IMD's records, this is an unprecedented event of three years of above normal rain in a block of four years.

References

1. <https://www.thehindu.com/sci-tech/energy-and-environment/shifting-monsoon-patterns/article65935590.ece?homepage=true>