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Discuss the spatial and temporal variation of rainfall in India. Has this pattern been changing in recent years? Examine.

Ans:

India being a tropical country has monsoon type of climate and average rainfall in India is 125 cm. But its large latitudinal and longitudinal extent as well as varied topography affects its distribution of rainfall from 20 cm - 400 cm.

### Temporal Variation:

It means distribution of rainfall over time in a year. According to IMD there are 4 major seasons and rainfall varies accordingly.

Winter (Nov-Feb): India receives rainfall in N-W region due to Western disturbances.

Summer (Mar-May): During this time ITCZ is over Northern part and there is less rainfall during this time.

Rainy (Jun-Sep): As the onset of Westerly monsoon winds begins, it brings much of the rainfall over almost complete subcontinent.

Retreating Monsoon (Oct-Nov): Easterly winds retreat from continent bringing rainfall over eastern coast.

## Spatial Variation:

It means variation in rainfall across geographic area. It varies from 20 cm - 400 cm/year in India.

- ① 0-20 cm : Occurs over areas of Rajasthan and some Northern part of J&K.
- ② 20-100 cm : In parts of Gujarat and Delhi, Haryana. Deccan region including Western Ghats.
- ③ 100-200 cm : Himalayan states and Eastern and Odisha, ~~Chh~~ Chattisgarh, Eastern MP.
- ④ 200-400 : States of Arunachal, Meghalaya, Sikkim and area westward of Western Ghats.

## Changing Rainfall pattern:

In recent years there has been a consensus among people that this pattern of variation is changing.

This change can be observed by:

- ① Extreme events of flooding and water scarcity.
- ② Sudden breaks in rainfall.
- ③ Torrential downpours at various places.
- ④ Early and late arrival of monsoon.
- ⑤ Variation in amount at a place over years.

Various reasons for this are:

① Climate change

② ENSO, Indian Ocean Dipole

Considering these human induced and natural causes what the need of time is increasing resilience and adaptation to these various changes and government should come up with comprehensive management plans.