Geography · GS - I

The El Niño–Southern Oscillation and Indian Ocean Dipole influence the Indian monsoon through complex ocean-atmosphere interactions. Explain how a transition from El Niño to La Niña may affect India's 2027 monsoon prospects.

EXAM YEAR	PAPER	SUBJECT
DAILY PRACTICE 21/11/2026	GS - I	Geography

MARKS	WORD LIMIT
15	~250 words

Answer Hint

ENSO, El Niño, La Niña, Walker circulation, Indian Ocean Dipole, monsoon variability, sea surface temperature, agricultural planning, seasonal forecasting, climate resilience

Model Answer

Introduction

The Indian summer monsoon is influenced by interactions between the Pacific and Indian Oceans. According to the reported INCOIS outlook, a possible transition from El Niño to La Niña in 2027 could create favourable conditions for monsoon rainfall, although the final outcome remains uncertain.

Ocean-Atmosphere Mechanisms

1. **El Niño:** Warming of the central and eastern equatorial Pacific alters atmospheric circulation, often weakening the Walker circulation and suppressing Indian monsoon rainfall.
2. **La Niña:** Cooling of the equatorial Pacific generally strengthens the Walker circulation and can enhance monsoon-supporting atmospheric conditions over the Indian region.

3. **Indian Ocean Dipole:** A positive IOD, characterised by warmer western and cooler eastern Indian Ocean waters, can support Indian monsoon rainfall and sometimes offset adverse El Niño effects.
4. **Regional interactions:** Eurasian snow cover, land-surface conditions and intra-seasonal oscillations also influence rainfall distribution.

Implications for India

- **Agriculture:** Monsoon variability affects sowing decisions, crop yields and irrigation requirements.
- **Water security:** Rainfall influences reservoir storage, groundwater recharge and drinking-water availability.
- **Disaster management:** Excess rainfall may increase flood, landslide and urban inundation risks.
- **Economic stability:** Monsoon performance affects rural demand, food inflation and agricultural employment.

Way Forward

India should strengthen seasonal forecasting, district-level early-warning systems, drought- and flood-resilient agriculture, water conservation and climate-informed crop planning.

Conclusion

A shift towards La Niña may improve India's 2027 monsoon prospects, but it cannot guarantee above-normal rainfall everywhere. Adaptive planning based on multiple climate indicators is essential for reducing monsoon-related vulnerabilities.

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