Mains Analysis: The northeast monsoon in an El Niño year – why the south must plan for extremes, not averages

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Context

The northeast monsoon set in over Tamil Nadu and the adjoining south peninsula in mid-October 2026. It follows a weak southwest monsoon: the June–September season ended at about **87% of the long-period average (LPA)**, the largest shortfall since 2015, in a year of a strong **El Niño**. The India Meteorological Department (IMD) expects below-normal October–December rain for most of India but **normal to above-normal rain over the southern peninsula**. For Tamil Nadu, which depends on this season for drinking water and the samba crop, the question is not only how much it will rain but how the rain will come – in long dry gaps broken by a few very heavy spells.

> **GS mapping:** GS-I – Indian monsoon, important geophysical phenomena (cyclones). GS-III – Disaster management; agriculture and irrigation; climate change. Also useful for Essay (urban resilience).

Background – how the northeast monsoon works

- **Season:** October–December; also called the **retreating monsoon**. As the southwest monsoon withdraws, the winds over the Bay of Bengal turn north-easterly and bring rain to the Coromandel coast.
- **Area:** IMD's "south peninsula" for this season has five subdivisions – Tamil Nadu–Puducherry–Karaikal, Coastal Andhra Pradesh–Yanam, Rayalaseema, South Interior Karnataka and Kerala–Mahe.
- **Importance for Tamil Nadu:** the State receives nearly half of its annual rainfall in this season, unlike most of India.
- **Rain-bearing systems:** low-pressure areas, depressions and cyclones from the Bay of Bengal – October–December is the main post-monsoon cyclone season.
- **Variability:** the season is far more variable than the southwest monsoon; in El Niño years Tamil Nadu has often received normal or excess rain (the Chennai floods of December 2015 and Cyclone Michaung in December 2023 both came in El Niño years).

Why it matters – key dimensions

Dimension	Issue
Water security	Reservoirs and tanks of Tamil Nadu are recharged mainly in this season; a failure means summer drinking-water stress.
Agriculture	The samba (Cauvery delta) crop and rabi sowing in the south depend on it; a weak southwest monsoon raises the stakes.
Urban flooding	Short, intense spells overwhelm drains in Chennai and other coastal cities built over lakes, marshes and floodplains.
Cyclones	Bay of Bengal cyclones bring wind damage, storm surge and extreme rain in a single day.
Climate change	Fewer rainy days but more very-heavy-rain days make averages less useful; forecasting the extremes matters more.

Challenges

- **Forecasting limits:** the season is driven by short-lived systems; skill at district level and beyond a few days is still limited.
- **Encroached water bodies:** loss of tanks, marshes and river margins reduces natural storage and drainage.
- **Storage gap:** heavy rain runs off to the sea, while the same areas face water scarcity months later.
- **Last-mile warning:** alerts do not always reach fishers, farmers and slum residents in a form they can act on.

Way forward

1. Move to **impact-based forecasting** – warnings that say what will happen to a street or a crop, not only how many millimetres will fall.
2. Use the Union government's **Mission Mausam** (2024) to improve radar coverage and high-resolution forecasts for the south coast.
3. Restore and protect tanks, lakes and marshes; enforce no-construction rules in floodplains; follow NDMA guidelines on urban flooding.
4. Build a **"store the surplus"** plan – tank desilting, recharge wells and inter-linking of local tanks – so flood water becomes summer water.
5. Strengthen community warning through local bodies, fishers' associations and mobile alerts; plan crop insurance and contingency seeds early.

> **Conclusion:** The northeast monsoon is Tamil Nadu's lifeline and its biggest weather risk at the same time. In a warming climate the goal must shift from counting total rainfall to managing its extremes – absorbing floods and storing water for the dry months.

Mains practice question

Q. "The northeast monsoon is less predictable than the southwest monsoon, but its impacts are more concentrated." Explain the mechanism of the northeast monsoon and suggest measures to reduce its flood risk in coastal cities of South India. *(15 marks, 250 words)*

Answer framework: Introduction – season, area, share in Tamil Nadu's rainfall · Body – (a) mechanism: retreating winds, Bay of Bengal systems, cyclones; (b) why it is less predictable; (c) impacts: urban floods, agriculture, water security, with one example · Way forward – impact-based forecasting, Mission Mausam, wetland restoration, storage · Conclusion – faculty-view line below.

Prelims pointers

- Northeast monsoon = October–December; retreating monsoon; Coromandel coast gets most rain.
- Long-period average (LPA) is the average rainfall of a long base period; IMD calls 96–104% of LPA "normal" for the southwest monsoon.
- El Niño – warming of the central and eastern equatorial Pacific; usually weakens the southwest monsoon.
- Mission Mausam – approved by the Union Cabinet in September 2024 to make India "weather-ready and climate-smart".
- Sendai Framework for Disaster Risk Reduction 2015–2030; Disaster Management Act, 2005.

Asked before in UPSC Mains (PYQ)

Official question-paper wording, with how this analysis helps you answer it.

GS-III 2024 15 marks

"Flooding in urban areas is an emerging climate-induced disaster. Discuss the causes of this disaster. Mention the features of two such major floods in the last two decades in India. Describe the policies and frameworks in India that aim at tackling such floods."

How this helps: Chennai 2015 and Cyclone Michaung 2023 are ready examples; add the sponge-city and NDMA urban-flood points.

GS-I 2024 10 marks

"What is sea surface temperature rise? How does it affect the formation of tropical cyclones?"

How this helps: link warm Bay of Bengal waters to the October–December cyclone season of the northeast monsoon.

GS-I 2022 10 marks

"Discuss the meaning of colour-coded weather warnings for cyclone prone areas given by India Meteorological Department."

How this helps: explain how colour codes are a step towards impact-based forecasting.

Faculty view – looking ahead (Shanmugam IAS Academy)

The real shift to understand is from **"how much rain"** to **"how the rain comes"**. A normal season can now be made of a few extreme days and long dry gaps – which means floods and water shortage in the same year, in the same district. Policy that plans only for the seasonal average will fail at both ends.

- **A term that will lift your answer:** "sponge city" – a city designed to absorb, store and reuse rain through wetlands, parks, permeable surfaces and tanks. Pair it with "impact-based forecasting" for disaster-management questions.
- **What to watch next:** (1) how this season behaves in a strong El Niño year, (2) cyclone landfalls in November–December, (3) progress of Mission Mausam radars and city flood-warning systems, (4) reservoir levels at the end of December for next summer.
- **Ready-made conclusion line:** "In a changing climate the question is not how much it rains, but how much a region can absorb and store."

Sources: India Meteorological Department – southwest monsoon end-of-season statement and October–December 2026 outlook (30 September 2026); IMD/RMC Chennai bulletins, October 2026; Mission Mausam (Cabinet decision, September 2024); NDMA guidelines on urban flooding. Original analysis by Shanmugam IAS Academy.

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