Indian Economy · GS - III

How can El Niño-induced climate variability threaten India's agricultural security? Suggest measures to strengthen the resilience of Indian agriculture.

EXAM YEAR	PAPER	SUBJECT
DAILY PRACTICE 25/11/2026	GS - III	Indian Economy

MARKS	WORD LIMIT
15	~250 words

BECOME IAS
AI POWERED UPSC PREP

Answer Hint

ENSO, Indian monsoon, rainfall deficit, water stress, crop diversification, climate-resilient agriculture, irrigation efficiency, weather forecasting

Model Answer

Introduction

El Niño is a climate phenomenon involving abnormal warming of the central and eastern equatorial Pacific Ocean. By influencing global atmospheric circulation, it can alter Indian monsoon patterns and increase agricultural uncertainty.

Implications for Indian Agriculture

1. **Rainfall uncertainty:** El Niño can weaken the Indian summer monsoon, increasing the possibility of droughts and uneven rainfall distribution.

2. **Reduced sowing:** Inadequate soil moisture and delayed monsoon rainfall can discourage farmers from cultivating water-intensive crops such as wheat and rice in suitable growing seasons.

3. **Groundwater stress:** Reduced rainfall increases dependence on groundwater, accelerating depletion in water-stressed agricultural regions.

4. **Food security risks:** Lower agricultural production can increase food-price volatility, affect farm incomes and create pressure on public food-management systems.

5. **Cropping-pattern changes:** Farmers may shift towards relatively less water-intensive crops such as pulses and oilseeds depending on local agro-climatic conditions.

Measures to Strengthen Resilience

1. **Crop diversification:** Promote millets, pulses and oilseeds in areas vulnerable to rainfall variability.

2. **Water management:** Expand micro-irrigation, rainwater harvesting and watershed development.

3. **Climate information:** Improve seasonal forecasting, district-level advisories and early-warning systems.

4. **Resilient agriculture:** Encourage drought-tolerant seeds, conservation agriculture and improved soil-moisture management.

5. **Institutional support:** Strengthen crop insurance, agricultural extension and timely access to credit and quality seeds.

Conclusion

India's agricultural security requires moving from rainfall-dependent production towards climate-resilient farming. Scientific forecasting, efficient water use and diversified cropping systems can reduce the vulnerability of farmers to ENSO-related fluctuations.