Environment & Ecology · GS - III

District-level climate-risk assessment is essential for strengthening India's agricultural resilience and disaster preparedness. Discuss the role of geospatial technology and administrative data in climate adaptation planning.

EXAM YEAR	PAPER	SUBJECT
DAILY PRACTICE 11/11/2026	GS - III	Environment & Ecology

MARKS	WORD LIMIT
10	~150 words

Answer Hint

Climate vulnerability, district-level planning, remote sensing, GIS, agricultural forecasting, drought monitoring, public health, data integration, climate adaptation, nutritional security.

Model Answer

Introduction

Climate change affects regions differently depending on their geography, agricultural practices and socio-economic conditions. District-level data enables localised assessment and targeted adaptation strategies.

Role of Data and Technology

- **Remote sensing:** Satellite imagery helps monitor crop health, soil moisture, droughts and flood-prone areas.
- **Geographic Information Systems:** GIS maps spatial vulnerabilities and supports location-specific interventions.

- **Administrative records:** Agricultural, health and demographic data help identify vulnerable communities and assess potential losses.
- **Early warning:** Integrated datasets improve forecasting and preparedness for extreme weather events.
- **Policy targeting:** District-level assessments support crop diversification, irrigation planning and climate-resilient agriculture.

Challenges

Data gaps, incompatible databases, limited technical capacity and inadequate coordination can weaken assessments.

Way Forward

India should develop interoperable district-level databases, strengthen local institutions, train officials and ensure regular data updates. Community participation can improve the reliability of ground-level information.

Conclusion

Integrating geospatial technology with administrative data can strengthen climate resilience, protect livelihoods and support long-term food and nutritional security.

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