Geography · GS - I

Discuss the consequences of climate change on the food security in tropical countries.

EXAM YEAR	PAPER	SUBJECT
2023	GS - I	Geography

MARKS	WORD LIMIT
10	~150 words

Answer Hint

Climate change affects food security through heat stress, altered rainfall, droughts, floods, pests and ocean changes; examine impacts on production, availability, access, utilisation and stability; discuss vulnerability of small farmers and suggest climate-resilient agriculture and adaptation.

Model Answer

Introduction

Tropical countries are particularly vulnerable to climate change because agriculture is often dependent on monsoon rainfall, high temperatures and climate-sensitive ecosystems. Climate change consequently threatens all major dimensions of food security.

Body

Impact on Production:

Rising temperatures can reduce crop yields by increasing heat stress, particularly during flowering. Changes in rainfall may produce droughts or excessive flooding, damaging crops.

Water Stress:

Changing precipitation and increased evaporation reduce water availability for irrigation. Groundwater depletion can further intensify agricultural vulnerability.

Pests and Diseases:

Warmer conditions may expand the geographical range of pests and pathogens, increasing crop losses and input

requirements.

Marine Food Security:

Ocean warming and acidification can affect fisheries, threatening protein availability and coastal livelihoods.

Access and Affordability:

Lower production and supply disruptions can raise food prices, disproportionately affecting poor households. Small and marginal farmers may suffer income losses and increased indebtedness.

Way Forward:

Climate-resilient seeds, micro-irrigation, crop diversification, agroforestry, improved weather forecasting, crop insurance and climate-smart agricultural practices are essential.

Conclusion

Climate change therefore threatens not merely agricultural output but the **availability, affordability, nutrition and stability** of food. Adaptation must become central to tropical agricultural policy.

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