Environment & Ecology · GS - III

Discuss global warming and mention its effects on the global climate. Explain the control measures to bring down the level of greenhouse gases which cause global warming, in the light of the Kyoto Protocol, 1997.

EXAM YEAR	PAPER	SUBJECT
2022	GS - III	Environment & Ecology

MARKS	WORD LIMIT
15	~250 words

Answer Hint

Global warming is the long-term rise in Earth's average temperature, primarily caused by human-generated greenhouse gases. Its consequences include extreme weather, melting ice, sea-level rise and ecosystem disruption. The Kyoto Protocol established binding emission-reduction targets for developed countries and introduced market-based mechanisms, while effective mitigation requires global cooperation.

Model Answer

Introduction

Global warming results mainly from increasing concentrations of carbon dioxide, methane and other greenhouse gases due to fossil-fuel combustion, deforestation, agriculture and industrial activity.

Effects on Global Climate

Rising temperatures intensify heatwaves and alter rainfall patterns. Melting glaciers and polar ice contribute to sea-level rise, threatening coastal settlements. Changes in monsoon behaviour, droughts, floods and extreme weather affect agriculture, water security and human health. Ocean warming and acidification damage marine

ecosystems, while biodiversity loss increases as species struggle to adapt.

Control Measures

Renewable energy, energy efficiency, electrified transport, afforestation and sustainable agriculture can reduce emissions. Methane capture, cleaner industrial processes, carbon pricing and improved waste management can further limit greenhouse gases. Adaptation measures are also necessary to manage unavoidable climate impacts.

Kyoto Protocol, 1997

Adopted under the UNFCCC, the Kyoto Protocol established legally binding emission-reduction targets for developed countries, reflecting the principle of common but differentiated responsibilities. It introduced emissions trading, the Clean Development Mechanism and Joint Implementation to support cost-effective reductions. The Doha Amendment extended the commitment framework into a second period.

Conclusion

The Kyoto Protocol established an important foundation for international climate action. Sustained progress requires stronger mitigation, climate finance, technology transfer and equitable cooperation among developed and developing countries.

BECOME IAS
AI POWERED UPSC PREP