Geography · GS - I

Discuss the causes of depletion of mangroves and explain their importance in maintaining coastal ecology.

EXAM YEAR	PAPER	SUBJECT
2019	GS - I	Geography

MARKS	WORD LIMIT
10	~150 words

Answer Hint

Coastal development; aquaculture; pollution; land reclamation; freshwater alteration; biodiversity; coastal protection; blue carbon; fisheries; ecosystem restoration

Model Answer

Introduction

Mangroves are salt-tolerant forests found in tropical and subtropical coastal intertidal zones. Their specialised roots and ability to tolerate saline conditions make them essential to coastal ecological stability.

Causes of Mangrove Depletion

- **Urbanisation and infrastructure:** Ports, roads, industries and coastal settlements replace mangrove habitats.
- **Aquaculture:** Conversion of coastal wetlands into shrimp and fish farms destroys vegetation and alters hydrology.
- **Pollution:** Industrial effluents, sewage, plastics and oil spills damage mangrove ecosystems.
- **Altered freshwater flows:** Dams and river diversions change sediment and nutrient supply, affecting mangrove growth.
- **Overexploitation:** Excessive cutting for fuelwood and timber degrades forest cover.
- **Climate change:** Sea-level rise and extreme weather threaten mangroves, particularly where inland migration is blocked by development.

Importance in Coastal Ecology

- **Coastal protection:** Dense root systems stabilise sediments and reduce wave energy, erosion and storm impacts.
- **Biodiversity:** Mangroves provide nursery grounds for fish, crustaceans, molluscs and many bird species.
- **Carbon sequestration:** Mangrove soils store substantial quantities of carbon, supporting climate-change mitigation.
- **Livelihoods:** They sustain fisheries and provide resources for coastal communities.
- **Water quality:** Mangroves trap sediments and can retain certain pollutants, helping maintain coastal ecosystem health.

Conclusion

Mangrove conservation requires protecting existing forests, restoring degraded areas, maintaining natural tidal flows and regulating coastal development. Their ecological services make them indispensable to climate resilience and sustainable coastal livelihoods.

BECOME IAS
AI POWERED UPSC PREP