



## Mains Practice Question

**Q.** India's coastal ecosystems face multiple threats from climate change and development pressures. Examine the effectiveness of Coastal Regulation Zone (CRZ) norms in protecting these vulnerable ecosystems.. **(250 words)**

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### Approach

- Introduce the answer by briefing about India's coastal ecosystems as a background of Coastal Regulation Zone (CRZ) norms
- Give Effectiveness of CRZ Norms in Protecting Coastal Ecosystems
- Suggest Measures to Strengthen Coastal Protection
- Conclude suitably.

### Introduction

India's coastal ecosystems—**mangroves, coral reefs, estuaries, wetlands, and sand dunes**—are crucial for biodiversity, climate resilience, and livelihoods.

- However, they are increasingly threatened by sea-level rise, erosion, saline intrusion, and unregulated development.
- To mitigate these challenges, the **Coastal Regulation Zone (CRZ) norms were introduced in 1991** under the **Environment Protection Act, 1986**, with amendments to balance conservation and economic growth.

### Body

#### Effectiveness of CRZ Norms in Protecting Coastal Ecosystems:

- **Successes of CRZ Norms**
  - **Protection of Ecologically Sensitive Areas:** CRZ-I classification restricts activities in mangroves, coral reefs, and sand dunes, preventing large-scale destruction.
    - **Example:** Mangrove protection in **Sundarbans** and **Maharashtra's Konkan region** has improved coastal resilience.
  - **Regulation of Industrial and Infrastructure Development:** Stringent environmental clearance norms prevent unchecked coastal urbanization and industrial encroachments.
    - **Example:** In Kerala, restrictions under CRZ helped control **unregulated tourism-driven construction in Varkala**.
  - **Community-Centric Approach:** CRZ 2019 recognized the **livelihood needs of coastal communities**, allowing **sustainable fishing, aquaculture, and eco-tourism**.
    - **Example:** Fishing communities in Tamil Nadu benefited from **relaxed norms for traditional activities**.
  - **Legal and Institutional Mechanism:** CRZ violations can be challenged in the **National Green Tribunal (NGT)**, ensuring accountability.

### ▪ **Challenges and Limitations:**

- **Weak Enforcement and Violations:** Large-scale violations, particularly in **Mumbai, Goa, and Chennai**, due to **poor monitoring and political interference**.
  - **Example: Illegal coastal constructions in Goa** despite CRZ restrictions.
- **Dilution of Protection Mechanisms:** CRZ 2019 **reduced the No-Development Zone (NDZ) from 200m to 50m** in rural areas, increasing coastal vulnerability.
- **Conflict Between Development and Conservation:** Expanding **port infrastructure, tourism, and industrial corridors** leads to ecosystem degradation.
  - **Example: Vizhinjam Port (Kerala)** has faced criticism for **environmental damage**.
- **Climate Change Threats Not Fully Addressed:** CRZ norms focus more on **spatial zoning** rather than **long-term climate resilience strategies**.
  - Lack of **integrated coastal zone management (ICZM)** leads to **ineffective adaptation against rising sea levels and storm surges**.

### **Measures to Strengthen Coastal Protection:**

- **Strict Monitoring and Enforcement:** Strengthen **Coastal Zone Management Authorities (CZMAs)** for better enforcement of CRZ norms.
  - Use **GIS mapping and satellite surveillance** to track violations.
- **Integrated Coastal Zone Management (ICZM):** Promote **sustainable tourism, climate-resilient infrastructure, and eco-sensitive development**.
- **Stronger Community Participation:** Involve **fishing communities, local stakeholders, and panchayats** in decision-making.
  - Promote **sustainable aquaculture and mangrove restoration** programs.
- **Climate-Resilient Coastal Planning:** Implement **natural barriers like mangrove afforestation and dune stabilization**.
  - Strengthen **disaster preparedness measures** against cyclones and rising sea levels.
- **Balancing Development with Conservation:** Ensure **Environmental Impact Assessments (EIA)** before approving **ports, industries, and tourism projects**.
  - Promote **eco-friendly alternatives** in construction and infrastructure projects.

### **Conclusion**

The **MISHTI Scheme (Mangrove Initiative for Shoreline Habitats & Tangible Incomes)** launched in **Union Budget 2023-24** is a **step in the right direction**, focusing on **mangrove afforestation and conservation**. By integrating **CRZ norms with climate-resilient initiatives like MISHTI**, India can **enhance coastal protection while ensuring sustainable development**.