

- **Biological hazards:** Particularly vector-borne and water-borne diseases. Higher temperatures, and prolonged wet conditions which affect coastal cities disproportionately, are more favourable for the mosquitos, rodents and other animals that carry vector-borne diseases.
- **To prevent destruction of life and property:** Natural disasters and shoreline erosion are two of the main threats that coastal communities face. Such communities are particularly vulnerable to hurricanes and tsunamis.

WAY FORWARD:

- **Proper implementation and funding support:** Climate action plans for coastal city level should have clear short- and long-term implementable action and have necessary financial, institutional and policy support.
- **Guiding Principles for Coastal City Climate Action Planning:** It aims to reduce greenhouse gas emissions and adopt low emission development trajectories (mitigation), as well as adapt to the impacts of climate change (adaptation) and build local climate resilience.
- **Coastal risk assessment:** The coastal data along with future climate projections should be used to prepare an in- depth coastal risk assessment that will inform us how we can be disaster-proof and make our coastline resilient.
- **Improve access to Climate Information Services (CIS):** Given the high rates of information utilisation and sharing, CISs access should improve the ability of people to make informed decisions on how to capitalise upon or prepare for future conditions, increasing their vulnerability to climate shocks and food insecurity.
- **Building capacity:** Addressing climate change is a complex challenge that requires involvement from multiple city government departments or agencies political support for action.
- **Coastal Regulation Zone (CRZ):** To deal with issues of rising frequency and severity of the cyclones, flood etc., there is an urgent need to follow the CRZ rules to develop and manage the coastal regions on scientific principles, considering the current global challenge of climate change and sea-level rise.

WARNINGS FROM IPCC REPORT FOR MUMBAI

Globally, coastal areas will see continued sea level rise (3-4 mm per year to 3-8 mm per year in a very low emission scenario) throughout the 21st century, contributing to more frequent and severe coastal flooding in low-lying areas and coastal erosion.

ASIA:

➤ Relative sea level around Asia has increased faster than global average, with coastal area loss and shoreline retreat



➤ Scientist from Indian Institute of Tropical Meteorology and one of the lead authors of the IPCC sixth assessment report Swapna Panickal said

➤ "The surface of the Indian Ocean has warmed faster than the global average. Sea level around Asia has increased faster than global average, with coastal area loss and shoreline retreat



INTERPRETATION:

➤ Prediction of faster sea-level rise in Asia (3.7 mm annually in Indian Ocean) signals flooding likely in low-lying areas of Mumbai

➤ Sea level rise is estimated at 1.3mm/year along Indian coasts in the last 40-50 yrs

BASED ON A PUBLISHED STUDY:

Net sea level rise off Mumbai is estimated to be **0.74 mm/year** (based on 1878-2005 records)

Projects in city that may need re-engineering

Coastal road	Trans-harbour Link	Underground Metro
		Redevelopment of Mumbai Port Trust Land

INTERNATIONAL EFFORTS FOR ENVIRONMENTAL CONSERVATION

PREVIOUS YEAR QUESTIONS:

• Explain the concepts "Environmental Sustainability" and "Sustainable Development of People"?	2012
• Should the pursuit of carbon credit and clean development mechanisms set up under UNFCCC be maintained even though there has been a massive slide in the value of carbon credit? Discuss with respect to India's energy needs for economic growth.	2014

EARTH SUMMIT 1992

- Earth Summit 1992 is also known as **The United Nations Conference on Environment and Development (UNCED)**.
- Earth Summit 1992 **succeeded in raising public awareness** of the need to **integrate environment and development**.
- 190 countries pledged their commitment to achieve by 2010, a significant reduction in the current rate of biodiversity loss at global, regional and local levels.
- As a follow-up, the World Summit on Sustainable Development (**Rio+10**) was held in 2002 in Johannesburg, South Africa.