



General Studies-3; Topic: Conservation, environmental pollution and degradation, environmental impact assessment.

Rising Sea Levels

Introduction

- The World Meteorological Organization (WMO) has found in a new report that the **world's sea level is rising at an unprecedented rate.**
- It is having **disastrous consequences for the weather, agriculture, the groundwater crisis, and social disparities.**

Present Climate Crisis

- Consistent rise in global temperatures
- Record-breaking increases in the concentration of greenhouse gases
- Sustained drought-like conditions in East Africa
- Record rainfall in Pakistan
- Unprecedented heatwaves that struck Europe and China in 2022.
- Antarctic sea ice fell to its lowest extent on record.

Sea Level Rise

- Sea-level rise is one of several compounding disasters.
- While the rate of sea-level rise was 2.27 mm/year in 1993-2002, it shot up to 4.62 mm/year in 2013-2022.
- The earth's ice cover, known as the cryosphere, has thinned.

Factors responsible for sea-level rise

- **Ocean warming, ice loss from glaciers and ice sheets, and changes in land water storage.**
- As the ocean heats up, it undergoes thermal expansion, which in turn leads to a rise in Sea level.
- Ocean heat content (OHC) measures in 2022 touched a new record.

Consequences

- Rising seas swallow more of the land cover, particularly in coastal areas.
- Coastal communities will face an acute shortage of land for human use.
- This will lead to an **increase in social disparities between people living in coastal areas.**
- With a rise in ocean temperatures, the **chances of cyclones could increase**, affecting coastal communities.
- South Africa was affected by five cyclones in over two months in 2022, leading to the displacement of hundreds of thousands of people.
- More seawater could seep into the ground, leading to the **groundwater turning more and more saline.**
- This can exacerbate water crises in coastal areas as well as agriculture in adjacent regions.
- In the Sunderbans delta in West Bengal, sediment from coastal areas has left more islands submerged under water, and this has forced local communities to migrate.
- This will further **endanger the socio-economic stability** of these communities.

Way Forward

- It is crucial that reports like the WMO's 'State of the Global Climate 2022' continue to generate and accumulate data on climate change.
- Need for global and local policy-level changes related to climate change.