

The effect of global warming on the oceans and cryosphere is the latest in the growing line of warnings that underscore the need for urgent climate action. Justify.

Climate change fever has pitched high since the Paris deal on discussion staged at Katowice, Poland. The IPCC 1.5°C report was a prelude to this landmark event. On the sidelines of UNFCCC climate summit, IPCC AR4 on land degradation, IPCC AR5 on Ocean, Cryosphere was released which once again corroborates the need for preserving climate vol.

ALARMING PICTURE: OCEAN and CRYOSPHERE

The 1.5°C benchmark affects every corner of activity on Earth. It is not spared the least concerned ocean, marine life and permafrost regions as well.

Brimming Ocean

1) High rates of emissions - Ocean heating twice the rate than required norms

2) Rising sea levels by 3.6mm per year. even when emissions cut, it would reach 30-60cm by 2100

3) Doubling frequency of marine heatwaves.

4) Cyclones, drought events happen every year from 2050.

5) Capacity to act as carbon sink becomes null by 2100. - Negative loop of warming

Consequential effects

→ Disrupts marine productivity

→ Melting of water layers.

→ Ocean currents, AMOC cycle

→ local wind pattern gets affected

→ Loss of livelihood for low lying areas eg: Indonesian islands.

→ Economic loss, infrastructure, disease due to forceful disasters

→ Net acidity increases, threaten marine life, food security affected

Melting Cryosphere

1) Accelerated glacier loss, glacial lake outflow burst

2) Arctic Ice at $>1.3^{\circ}\text{C}$ → September icefree
→ 2°C → icefree every 3 years

Sinking effects

→ river system can thin out, affect agriculture systems
eg: River Ganga minimum flow

→ Accelerated melting, release of CH_4 adding to GHG's

→ Inuit livelihood affected.

3) Depth of thawing at 2°C $\rightarrow$ 3-4m depth
and 70% lost at higher emissions by
2100

$\rightarrow$ loss of permafrost,
affects meridional circulation
ocean level rise, climate
events

(2)

Thus, deteriorating marine, cryosphere can accelerate climate change, global warming. The first line of effects are low lying areas, vulnerable coastal communities, river based economy.

examples: loss of glaciers in Alps.

Sinking islands of Indonesia.

It is high time that 1.5°C temperature rise must be contained, instead of anti environment rhetoric. Dedicated national policy targets, local community participation, awareness must be based by empathy to make the steep slopes of positive action.