Special report on the ocean & cryosphere in a changing climate

December 13, 2019
***Source**: IPCC & Down to Earth*

Background

This Special Report on the Ocean and Cryosphere in a Changing Climate (SROCC) was prepared following an IPCC Panel decision in 2016 to prepare three Special Reports during the Sixth Assessment Cycle. By assessing new scientific literature, the SROCC responds to government and observer organization proposals

Other reports followed by SROCC

- The SROCC follows the other two Special Reports on Global Warming of 1.5°C (SR1.5) and on Climate Change and Land (SRCCL) and the Intergovernmental Science Policy Platform on Biodiversity and Ecosystem Services (IPBES) Global Assessment Report on Biodiversity and Ecosystem Services.

Key findings

- The report highlights that the **global ocean has warmed unabated since 1970** and has taken up more than 90% of the excess heat in the climate system.
- The report highlights the **urgency of prioritizing action to address "unprecedented" and enduring changes in the ocean and cryosphere**.
- It indicates that with any degree of additional warming, events that historically occurred once per century will occur every year by mid-century in many regions. Recent

hurricanes in the Caribbean, for example, are a testament to this

- While sea level rise is currently rising more than twice as fast now as during the 20th century and accelerating, **the report notes a projected rise by 30-60 cm more by 2100 even if emissions significantly decrease** and temperature rise is limited to below 2°C. This figure will be much greater if emissions continue to rise unabated.

In addition, as mountain glaciers retreat, they are also altering water availability and quality downstream, with implications for many sectors, including agriculture and hydropower.**Immediate risks due to the impact on oceans and the cryosphere**

- **For one, sustainable development is at risk**. Communities' livelihood options such as ecosystem services are already at high risk. And on the front line of these risks are the poor and marginalised people.

Impact on India

- **For India,** which has coastlines along the Arabian Sea to the west and the Bay of Bengal to the east, which are home to around 250 million people, the impact of the warming of oceans will increase climatic events such as cyclones. These events are predicted to be on the rise and will be more severe in future decades.
- Salinity ingress will pollute the freshwater bodies and will have huge impacts on water for irrigation and domestic use.
- **Rainfall:**The shifting rainfall patters of the Indian monsoon will also have bearing for people living in the coastal areas.
- **Himalayan Region:** The major impact due to damage to the cryosphere will be in the Hindu Kush Himalayan (HKH) Region, which has the largest reserves of water in the

form of ice and snow outside the poles. What happens to Himalayan glaciers will affect over 2 billion people living in Asia, through the changes in water regimes of 10 major river basins that originates from HKH region.

- **Rivers:** In the Indus and Ganges river basins of India and Pakistan, snow and glacial melt provides enough water to grow food crops to sustain a balanced diet for 38 million people and supports the livelihoods of 129 million farmers.

Around 1.2 billion people living downstream of the Himalayas are directly affected by what happens to the glaciers upstream.