

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

IPCC Special Report on Global Warming of 1.5°C

1) Introduction

- IPCC released a “special report” on the actions the world needs to take to prevent global average temperatures from rising beyond 1.5°C as compared to pre-industrial times.
- Limiting global warming to 1.5 degrees would require rapid, far reaching and unprecedented changes in all aspects of society, the IPCC said.
- It compares the impact of global warming of 1.5 deg C and 2 deg C.
- It will be a key scientific input for the Climate Change Conference in Poland in December, when governments review the Paris Agreement to tackle climate change.

2) Highlights of the Report

- IPCC said that climate change could have “irreversible” and “catastrophic” impacts if the global average temperatures were allowed to rise beyond 2 degrees Celsius.
- We are already seeing the consequences of 1 degree Celsius of global warming through more extreme weather, rising sea levels and diminishing Arctic sea ice, among other changes.
- The international effort to tackle climate change must be accelerated in order to limit global temperature rises.
- Climate-related risks for natural and human systems are higher.
- The report notes that investment in physical and social infrastructure is a key enabler in enhancing resilience and adaptive capacity.
- Poorly designed or implemented adaptation projects can increase greenhouse gas emissions and water use, increase gender and social inequality, undermine health conditions, and encroach on natural ecosystems.
- Hence, adaptation efforts must pay attention to poverty and sustainable development.
- These efforts need financial support.
- Adaptation needs have generally been supported by public sector sources, multilateral development banks, and UNFCCC channels.
- An important but a less analysed segment in some regions is NGO and private funding.
- According to the report, there is a need to integrate Disaster risk management (DRM) and adaptation to reduce vulnerability.
- The report also identifies “educational adaptation” options which motivate adaptation through building awareness.
- A more participatory approach towards adaptation, especially for vulnerable population, will be to formulate adaptation action based on indigenous knowledge.
- These people are threatened by cultural modification, dispossession of land rights and land grabbing, rapid environmental and social changes.
- Therefore recognition of indigenous rights, governance systems and laws is central to adaptation, mitigation and sustainable development.
- Local governments are important; they enable more participative decision-making and involve wider community in designing and implementing adaptation policies.
- The report offers a stark vision of the choices available to the world in the coming decades.

3) What is the 1.5-degree question?

- Since 1990s, countries started discussing climate change and began negotiating an international arrangement for tackling it together.
- The objective has been to limit rising global average temperatures to within 2°C from pre-industrial times
- Periodic Assessment Reports produced by IPCC, suggest that the impacts of climate change could be “irreversible” and “catastrophic” if the rise in temperature was allowed to go beyond the 2°C ceiling.
- Small island states and the least developed nations, are likely to suffer the worst consequences of climate change.
- These countries asked that the goal should be to restrict the temperature rise within 1.5°C from pre-industrial times.
- A 1.5°C target demanded much deeper emission cuts from the big emitters, which in turn required massive deployment of financial and technological resources.
- The Paris Agreement ‘hold’ the increase in global average temperature to “well below” 2°C, it also promised to keep “pursuing efforts” to attain the 1.5°C target.
- Incidentally, the global average temperature has already risen by more than 1°C from pre-industrial times.
- At the current rate, the 1.5°C limit could be crossed as early as 2040.

4) Is the 1.5°C target attainable?

- The IPCC report suggests possible pathways to attain the 1.5°C objective.
- It would involve much sharper and quicker emission cuts by big emitters like China, the US, the European Union and India.
- These pathways are likely to be heavily dependent on the success of carbon removal technologies.
- No such technology exists yet, but several possibilities are being explored.

5) Carbon Dioxide Removal (CDR)

- IPCC has presented four pathways through which the 1.5 degree target can be achieved.
- Each of these pathways is also dependent on some amount of Carbon Dioxide Removal (CDR).
- It is the physical removal of the stock of carbon dioxide from the atmosphere to reduce its concentrations.
- Technologies for CDR are still undeveloped and untested.
- Varying amounts between 100 to 1000 gigatons of carbon dioxide would need to be removed from the atmosphere, the report says.

6) So what happens at 2°C that does not happen at 1.5°C?

- Research found that limiting global warming to 1.5°C could prevent around 3.3 million cases of dengue every year in Latin America and the Caribbean alone.
- According to World Bank report, additional 150 million people could be at risk from malaria if the temperature was allowed to increase beyond 2°C.
- The world could have 25 million fewer undernourished people by the end of the century, if the 1.5°C goal was achieved.
- 350 million additional people could be exposed to deadly heat waves if the warming increased to 2°C as compared to 1.5°C.
- 1.5°C could prevent 153 million premature deaths due to air pollution by 2100, as compared to the 2°C scenario.

- The world could be 3% wealthier by 2100 in a 1.5°C scenario compared to a 2°C scenario.
- A UNDP report in 2016 claimed that a 1.5°C strategy could create double the number of jobs in the energy sector by 2050.
- Extreme weather events such as heavy rainfall and heat waves are likely to become more severe and frequent, and freshwater supply could fall sharply, in a 2°C world.

7) Recommendations

- To limit ourselves to 1.5°C, global net anthropogenic CO₂ emissions should reduce by about 45 per cent from 2010 levels by 2030, and should reach net-zero around 2050.
- We also need serious cuts to non-CO₂ emissions.
- Both methane and black carbon need to be reduced by 35 per cent or more of 2010 levels by 2050.
- Achieving these cuts requires rapid and “far-reaching transitions in energy, land, urban and infrastructure (including transport and buildings), and industrial systems”.
- It will require political action and significant scale-up of investment.
- Average annual investment in low-carbon energy technologies and energy efficiency needs to scale up.
- Use of coal should reduce steeply and its share in electricity mix should be reduced to close to 0 per cent by 2050.
- Need for a significant fall in the share of oil in energy production by 2050.
- The industry sector will have to reduce emissions by around 75–90 per cent of 2010 levels by 2050.
- Real emission reductions can be achieved through a combination of new and existing technologies, including sustainable bio-based feedstocks, product substitution, and carbon capture, utilisation and storage (CCUS).
- In the land-use sector, some amount of pasture and non-pasture agricultural land for food and feed crops needs to be converted for energy crops.
- The IPCC’s role is limited to bringing forth these options; it is now up to governments to decide on how to act.
- They can start by scaling up ambition on nationally determined contributions.