Intergovernmental Panel on Climate Change

IPCC Sixth Assessment Report (AR6) – 2021

The IPCC has released the first part of the sixth Assessment Report 2021 (AR6). The report is titled 'Climate Change 2021: The Physical Science Basis'. The remaining parts of the report would be released in 2022. This report is significant because for the first time, acknowledged the role played by multiple climate change drivers operating in tandem to amplify disaster impacts all over the globe.

- The UN Secretary-General António Guterres has called the report 'code red' for humanity. The general message from the report is that there is no letup in global warming.
- According to the report, human activities are responsible for almost 100% of global warming. The combined contribution of natural factors is negligible.
    - 1.07℃ out of the 1.09℃ warming is due to GHG associated with anthropogenic activities.
- **Emissions:**
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    - The report states that the level of carbon dioxide in 2019 is greater than it had been in at least 2 million years.
    - The other gases that contribute majorly to global warming, namely, methane and nitrous oxide, also record the highest levels in at least 800,000 years.
    - Aerosols contribute to reducing the impact of warming therefore, a drastic reduction of aerosols actually leads to an increase in warming.
    - Forests, oceans and soil which are natural carbon sinks are showing signs of saturation.
    - CO2 emissions have increased by half since 1960.
- **Rise in temperature:**
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    - The global surface temperature was 1.09°C higher in 2011-20 than between 1850-1900.
    - 2011-20 was hotter than any time period in the last 1.25 lakh years.
    - Since the period 1850 to 1900, temperatures have now risen by about 1.1°C.
    - Even if we start reducing emissions now, we will still overshoot the 1.5°C mark by 2030. But we will see a drop in temperatures to around 1.4°C by 2100.
    - Since it will take 20 – 30 years for global temperatures to stabilise, the long term impacts of warming that are already setting in such as the melting of Arctic ice sea level rises, warming & acidification of the oceans, will take place.
    - Notwithstanding this fact, a 1.5°C level will render a much smaller risk than 2°C. The Paris Agreement of 2015 had set a limit of below 2° Celsius for temperature rise compared to pre-industrial levels. 1.5°C was set as an aspirational target for countries.
- **Impending threats:**

- Within the next 20 years, the temperatures are expected to rise by more than 1.5°C than the pre-industrial levels.
- With every increment of global warming, changes get larger in regional mean temperatures, precipitation and soil moisture.
- Compared to the 1901-1971 level, the sea level rise has increased three times in the last decade.
- Since 1900, global oceans have risen about 20 cm.
- Arctic ice is the lowest it has been in 1000 years because of ice melting.
- The main driver of sea-level rise is the melting ice of Antarctica.
- It is noteworthy that by 2100, with global warming of 1.5°C compared to 2°C, the global sea-level rise would be 10cm lower.
- Floods and sea-level rise in coastal areas, rapid changes in ocean circulation, ice sheet collapse, increased heatwaves, more serious floods and droughts, more intense storms are some of the threats.
- With every 1°C rise in temperature, there will be a 7% increase in the intensification of extreme rain events.

What the AR6 report says about India?

- India will face major threats from rising sea levels because of its over 7000 km coastline.
- Additionally, the Indian Ocean is warming faster than the global average.
- About 28.6 million people would be vulnerable to coastal flooding across the port cities of Kochi, Kolkata, Chennai, Surat, Visakhapatnam and Mumbai.
- Retreating snowlines can cause changes in the precipitation patterns, water cycle, increased flooding and increase water scarcity also in the states across the Himalayas.
- Both the summer and the annual monsoon precipitation is expected to increase.

Recommendations of the IPCC Report

- Countries should strive for net-zero emissions by 2050.
- Severe cuts are required in GHG emissions in this decade itself (2021-30).
- New coal plants and fossil fuel exploration and development should be ended.
- Governments, businesses and investors should work towards a low-carbon future.
- Cumulative emissions should be factored in while calculating net zero.
- Technology should be developed for bringing about negative emissions, which means, the planet should be cooled down. This can be done by:
    - sucking out or sequestering the carbon from the atmosphere
    - stopping the use of fossil fuels and stopping deforestation
- For staying below the 2°C target in this century, global emissions must peak sometime in the middle of this decade itself (by 2025).

IPCC – Overview

1. The IPCC – Intergovernmental Panel on Climate Change is a scientific government body under the United Nations set up at the request of the member governments, dedicated to providing the world with an objective, scientific view of climate change and its political and economic impacts on the nations.
2. It was first established in 1988 by two United Nations organizations, the World Meteorological Organization and the United Nations Environment Programme and later endorsed by the United Nations General Assembly.
3. Membership of the IPCC is open to all members of the WMO and the UNEP.
4. The IPCC produces reports that support the United Nations Framework Convention on climate change, which is the main international treaty on climate change. Check out the **list of Reports published by various International organizations** on the given link.
5. The main objective of UNFCCC is to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Know more about the United Nations Framework Convention on climate change – UNFCCC on the given link.

Candidates can know more about various other conventions given below –

- Vienna Convention
- Bonn Convention
- Stockholm Convention
- Basel Convention
- Rotterdam Convention

IPCC reports cover the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts and options for adaptation and mitigation.

The Intergovernmental Panel on Climate Change (IPCC) recently published a report on global warming and changes in the climate system and the associated impacts on natural and human systems, with a specific focus on the magnitude and pattern of risks for global warming. candidates can read the detailed IPCC Report on the given link.

FAQ about Ipcc

What does the IPCC say about global warming?

IPCC says limiting global warming to 1.5 °C will require drastic action. Humanity has a limited window in which it can hope to avoid the worst effects of climate change, according to climate report.

What is the origin of the IPCC?

IPCC was created in 1988 by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP), the objective of the IPCC is to provide governments at all levels with

scientific information that they can use to develop climate policies.