



CURRENT AFFAIRS



Argasia Education PVT. Ltd. (GST NO.-09AAPCAI478E1ZH)
Address: Basement C59 Noida, opposite to Priyagold Building gate, Sector 02,
Pocket I, Noida, Uttar Pradesh, 201301, CONTACT NO:-8448440231

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CLIMATE CHANGE: FUTURE AND CHALLENGES

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Why in News?

India has emerged as the voice of developing countries on the issue of climate change under the leadership of the Prime Minister of India, Shri Narendra Modi in the Delhi Declaration (Delhi Agreement) signed during the hosting of the G-20 conference in the year 2023. During the G-20 conference, in the Delhi Agreement, the idea of green belt for 'sustainable development' under the leadership of India has been put forward, which has been accepted by the whole world. Developing countries need financial assistance and technology transfer for the development of their country, unless the technology transfer from the developed countries of the world to the developing countries is done properly, the whole world will not be able to achieve development with climate and environmental protection. Will not be able to achieve the target.

Why do we need action?

Climate change is a global problem today that is now affecting every country on every continent. Not only is it disrupting national economies, it is also affecting human lives, and in the future, it will affect the present and future of people, communities and countries even more.

Current reference:

The issue of climate change is well known around the world. It cannot be denied that climate change is currently the biggest challenge facing the global society and dealing with it has become the biggest need of the present time. Data show that the average temperature at the Earth's surface has increased by about 1.62 degrees Fahrenheit (i.e., about 0.9 degrees Celsius) since the end of the 19th century. Apart from this, the sea water level has also increased by about 8 inches since the last century. Statistics clearly show that the present time is to think seriously towards climate change.

What is climate change?

In general, climate refers to the average weather in a given area over a long period of time. Therefore, when there is a change in the average weather of a particular area, it is called climate change.

Climate change can be felt not only in a particular place but also in the entire world. If we talk about the present context, its effect is being seen almost all over the world.

The climate has changed many times throughout the history of the Earth and many incidents of climate change have occurred.

Scientists who study the Earth say that the Earth's temperature is continuously increasing. The Earth's temperature has increased by 1 degree Fahrenheit in the last 100 years. This change in the Earth's temperature may be very small in number, but any such change can have the biggest impact on mankind.

Some effects of climate change can still be felt today. Due to increase in the earth's temperature, glaciers are melting and the water level of the oceans is increasing, as a result the risk of natural disasters and sinking of some islands has also increased.



Our changing climate:

Climate change is affecting our planet (Earth) from one pole to the other. NOAA monitors global climate data and following are some of the changes recorded by NOAA in recent years –

From 1901 to 2020, global temperatures rose by about 1.8°F (1°C).

Sea level rise has increased from 1.7 mm/year during most of the twentieth century to 3.2 mm/year since 1993.

Glaciers are shrinking: The average thickness of 30 well-studied glaciers has decreased by more than 60 feet since 1980.

The area covered by sea ice in the Arctic in late summer has decreased by about 40% since 1979.

The amount of carbon dioxide in the atmosphere has increased by 25% since 1958 and by about 40% since the Industrial Revolution.

Snow is melting earlier than the long-term average.

due to climate change

Greenhouse Gases:

There is a layer of greenhouse gas around the Earth, this layer includes gases like methane, nitrous oxide and carbon dioxide.

This layer of greenhouse gases is essential in maintaining the temperature balance on the earth's surface and according to analysts, if this layer is not there then the temperature of the earth will reduce significantly.

As human activities are increasing in the modern era, the emissions of greenhouse gases are also increasing and due to which the global temperature is increasing.

Main greenhouse gases:

Carbon dioxide - It is considered the most important greenhouse gas and is emitted due to both natural and human causes. According to scientists, most of the emissions of carbon dioxide come from burning fossil fuels for energy. Statistics show that after the Industrial Revolution, there has been a 30 percent increase in the amount of carbon dioxide globally.

Methane - Decomposition of organic matter is a major source of methane. It is noteworthy that methane is a more effective greenhouse gas than carbon dioxide, but its quantity in the atmosphere is less than that of carbon dioxide.

Chlorofluorocarbon - It is mainly used in refrigerants and air conditioners etc. and it has a very adverse effect on the ozone layer.

Change in land use:

Deforestation for commercial or personal use is also a major factor in climate change. Trees not only provide us with fruits and shade, but they also absorb important greenhouse gases like carbon dioxide from the atmosphere. The way trees are being cut at present is quite worrying, because trees act as a natural mechanism for absorbing carbon dioxide from the atmosphere and with their destruction, we will lose that natural mechanism as well.

In some countries such as Brazil and Indonesia, deforestation is the leading cause of greenhouse gas emissions.

Urbanization:

Due to urbanization and industrialization, there has been a lot of change in the way of living of people. The number of vehicles on roads around the world has increased significantly. Changes in lifestyle have contributed significantly to the emission of hazardous gases.

Effects of climate change:

High temperature:

Greenhouse gas emissions from power plants, automobiles, deforestation, and other sources are warming the Earth relatively quickly. The global average temperature has been rising continuously over the past 150 years and the year 2016 was recorded as the hottest year. Increased temperatures can also be attributed to an increase in heat-related deaths and illnesses, rising sea levels, increased intensity of hurricanes, and many other dangerous consequences of climate change. A research has found that if the issue of greenhouse gas emissions is not taken seriously and efforts are not made to reduce it, then the average temperature of the earth's surface may increase by 3 to 10 degrees Fahrenheit by the end of the century.

Change in rainfall pattern:

Irregularities of floods, droughts and rains etc. have increased significantly in the last few decades. All this is happening as a result of climate change. There is a lot of rainfall in some places, while in some places there is a possibility of drought due to lack of water.

Rise in sea level:

Globally, during global warming, glaciers melt and sea level rises, due to which the risk of submergence of islands around the sea also increases. People living in small island countries like Maldives are already looking for alternative destinations.

Loss of Wildlife Species:

Rising temperatures and changes in vegetation patterns have forced some bird species into extinction. According to experts, one-fourth of the Earth's species could become extinct by the year 2050. In 2008, polar bears were added to the list of animals that could become extinct due to sea level rise.

Spread of diseases and economic losses:

Experts have predicted that as a result of climate change in the future, diseases like malaria and dengue will increase further and will be difficult to control. According to World Health Organization (WHO) data, more than 150,000 people have died due to heat waves since last decade.

Forest fire:

Prolonged heat waves caused by climate change have created hot and dry conditions suitable for wildfires. According to data from the Brazil-based National Institute for Space Research (INPE), since January 2019, Brazil's Amazon forests have faced a total of 74,155 forest fires. It has also come to light that the incidence of fire in the Amazon forest has increased by 85 percent since last year (2018).

Climate Change and Food Security:

Food shortage may arise due to reduced crop production due to climate change, and problems like land degradation may also arise.

Asia and Africa are already dependent on imported foods. These areas may become vulnerable to drought due to rapidly rising temperatures.

According to the IPCC report, low-altitude areas are already seeing declines in yields of crops like wheat and corn.

The nutritional quality of crops is decreasing due to increase in the amount of carbon in the atmosphere. For example, due to high carbon environment, the nutritional value of wheat is decreasing by 6% to 13% of protein, 4% to 7% of zinc and 5% to 8% of iron.

Crop yields are falling due to the heat wave in Europe.

The Bloomberg Agriculture Spot Index, a price gauge of nine crops, fell to its lowest level in a decade in May. The volatility of this index reflects the instability of food security.

Global efforts to tackle climate change:

Intergovernmental Panel on Climate Change (IPCC):

The Intergovernmental Panel on Climate Change (IPCC) is a United Nations body responsible for conducting scientific assessments related to climate change. In which there are 195 member countries. It was established in 1988 by the United Nations Environment Program (UNEP) and the World Meteorological Organization (WMO).

Its purpose is to provide regular scientific assessments of climate change, its impacts and potential future risks, as well as to inform policymakers' strategies for adaptation and climate change mitigation. IPCC assessments provide governments at all levels with scientific information that can be used to develop climate-resilient policies.

IPCC assessments play an important role in international negotiations to combat climate change.

United Nations Framework Convention on Climate Change (UNFCCC):

It is an international agreement aimed at controlling the emissions of greenhouse gases into the atmosphere.

This agreement was made during the Earth Summit in June 1992. After the signing of this agreement by various countries, it came into force on March 21, 1994.

Annual meetings of the UNFCCC have been organized continuously since 1995. Under this, the much-discussed Kyoto Protocol was signed in the year 1997 and targets were set by the developed countries (countries included in Annex-1) to control greenhouse gases. Under the Kyoto Protocol, 40 industrialized countries have been kept in a separate list Annex-1.

The annual meeting of the UNFCCC is known as the Conference of the Parties (COP).

Paris agreement:

The Paris Agreement is an international agreement to deal with climate change.

From 30 November to 11 December 2015, representatives of governments from 195 countries met in Paris to discuss a possible new global agreement to combat climate change.

The Paris Agreement, consisting of 32 pages and 29 articles aimed at reducing greenhouse gas emissions, is recognized as a landmark agreement to curb global warming.

Climate change issues and India's efforts:

National Action Plan on Climate Change (NAPCC):

The National Action Plan on Climate Change in India was launched in the year 2008.

Its objective is to sensitize public representatives, various agencies of the government, scientists, industry and communities about the threat posed by climate change and measures to combat it.

This action plan mainly includes 8 missions:

- National Solar Mission.
- National Mission for Advanced Energy Efficiency.
- National Mission on Sustainable Habitat.
- National Water Mission.
- National Mission for Sustainable Himalayan Ecosystem.
- National Mission for Green India.
- National Mission for Sustainable Agriculture.
- National Mission on Strategic Knowledge for Climate Change.
- Apart from this, State Action Plans on Climate Change (SAPCC) have been prepared by the States and Union Territories of India, which is in line with the objectives of NAPCC.

International Solar Alliance (ISA)

The International Solar Alliance is a treaty-based international intergovernmental organization of solar energy-rich countries.

The International Solar Alliance was launched by India and France on November 30, 2015 during the Paris Climate Conference.

Its headquarters is in Gurugram (Haryana).

The key objectives of the ISA include achieving more than 1000 GW of solar power generation capacity globally and mobilizing approximately \$1000 billion for investment in solar energy by 2030.

The first meeting of the International Solar Alliance was organized in New Delhi.

Protective measures to prevent climate change:

- The use/use of fossil fuels should be reduced as much as possible.
- Natural sources of energy should be adopted, like solar energy, wind energy etc.
- Forests and trees should be saved from cutting and more trees should be planted.

- Materials that are difficult and impossible to decompose like plastic should not be used.
- Natural and renewable sources of energy should be adopted in greater numbers and quantities – like solar energy, wind energy etc.

Practice Questions for Preliminary Exam:

Q. 1. Consider the following statements in the context of global warming and changing climate change.

1. The International Solar Alliance is a treaty-based international intergovernmental organization of solar energy-rich countries.
2. Its headquarters is in Gurugram (Haryana).
3. The first meeting of the International Solar Alliance was organized in New Delhi.
4. The Paris Agreement is an international agreement to combat climate change.

Which of the above statement/statements is true?

- (a). 1, 2 and 3 only.
- (b). Only 2, 3 and 4.
- (c). None of these.
- (d). all of which.

Answer – (d)

Practice Questions for Main Exam:

Q.1. Review the steps taken by India while discussing the impacts and solutions to climate change in the context of increasing global warming ?

Rishabh