Mains Practice Question

Q. While there are ongoing efforts to reduce greenhouse gas emissions and restrict global warming to below 2°C or even below 1.5°C, there are also efforts to help us live in a world where average global temperatures are rising. Examine. (150 words)

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Approach:

- Briefly mention the ongoing efforts for GHG reduction.
- State the mitigation efforts being taken.
- Explain the significance of adaptation along with reduction in emissions.

Introduction

- Weather patterns are changing, sea levels are rising, weather events are becoming more extreme and greenhouse gas emissions are now at their highest levels in history. Recent IPCC report has warned on the harmful impacts of rise in temperature beyond 2°c and need to limit it within 1.5°c for better chance of survivability.
- Climate change mitigation generally involves reductions in human (anthropogenic) emissions of greenhouse gases (GHGs). Adaptation to global warming are actions taken to manage the eventual (or unavoidable) impacts of global warming, e.g., by building dikes in response to sea level rise.

Body

Efforts to reduce emissions

- Adoption of Paris Agreement at the COP21 in Paris in which all countries agreed to work to limit global temperature rise to well below 2 degrees centigrade.
- Increasing the capacity of carbon sinks, e.g., through reforestation to remove greater amounts of carbon dioxide from the atmosphere..
- Switching to low-carbon energy sources, such as renewable and nuclear energy.
- Improving energy efficiency for example by improving the insulation of buildings.
- Another approach to climate change mitigation is geoengineering
- Reducing sources of the gases (for example, the burning of fossil fuels for electricity, heat or transport) or enhancing the sinks that accumulate and store these gases (such as the oceans, forests and soil).

Significance of Mitigation Measures

- To avoid significant human interference with the climate system and ensure sustainability
- To stabilize greenhouse gas levels in a sufficient time frame
- To allow ecosystems to adapt naturally to climate change
- To ensure that food production is not threatened
- To enable economic development to proceed in a sustainable manner.

Efforts for Adaptation

- **Large-scale infrastructure changes**: Building flood defenses against sea-level rise and installing water-permeable pavements to better deal with floods and stormwater and improve water storage and use.
- **Plan for heatwaves and higher temperatures:** Improving the quality of road surfaces to withstand hotter temperatures
- **Building global consensus** to address the issue of refugee migrations due to climate change.
- Understanding, identifying and moving towards more **climate resilient agriculture**. Making the most of any potential beneficial opportunities associated with climate change for example, longer growing seasons or increased yields in some regions.
- **Behavioural shifts** such as individuals using less water, farmers planting different crops and more households and businesses buying flood insurance.

Significance of Adaptation

- Adaptation can help manage the effects of-

  - Droughts on land, and flooding at the coasts,
  - The loss of marine species due to acidification of the oceans
  - The disruption of long-term weather patterns around which the world's agriculture has been shaped

- Can help reduce vulnerability by lowering sensitivity or building adaptive capacity
- Can allow populations to benefit from opportunities of climatic changes, such as growing new crops in areas that were previously unsuitable.

Conclusion

Mitigation addresses the root causes, by reducing greenhouse gas emissions, while adaptation seeks to lower the risks posed by the consequences of climatic changes like sea-level encroachment, more intense extreme weather events or food insecurity. Both the measures are equally important to address the issue of climate change holistically.