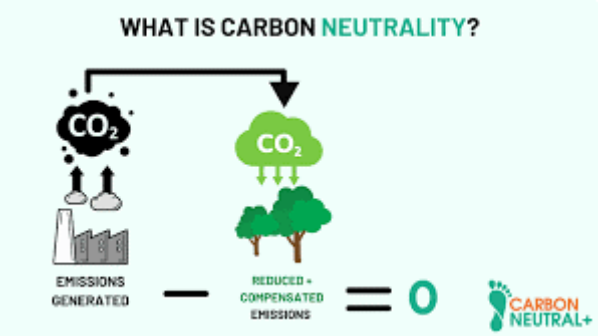
India’s Road to Net Zero by 2070

Why in news?

As the effects of climate changes becoming more evident, India’s commitment to achieve net-zero carbon emissions by 2070 needs to be sustainable.

What are the needs to achieve net zero carbon?

- **Net zero –** It is also known as carbon-neutrality that refers to achieving a balance between the carbon emitted into the atmosphere and the carbon removed from it.
- **India’s target** – India, announced the target to achieve net-zero carbon emissions by 2070 at **COP26** in Glasgow in 2021.



- **Significances of carbon neutrality**
- **Climate change mitigation** - Limiting the average temperature rise to 1.5°C above pre-industrial levels is important to avoid severe climate change impacts.

  Currently, global temperatures have already risen by 1°C since 1880 due to industrial revolution.

  India is the 3rd largest GHG emitter after china and US despite.

- **Biodiversity protection -** Reduces pollution and conserves natural habitats, aiding in the protection of diverse ecosystems.
- **Cleaner air and water -** Decreases pollution, leading to improved air and water quality, which is beneficial for human health and the environment.
- **Quality of life -** Promotes sustainable urban development, leading to cleaner, healthier, and more livable communities.
- **Strategy –** India follows long-term low-carbon development strategy based on two principles to achieve net zero.
    - Equity and climate justice

    - Common but differentiated responsibilities
- **Sustainable path –** By embracing sustainable practices on climate action, India achieves sustainable future that balances development and fighting climate change.
- **Opportunities in achieving net zero -** Transitioning to a net-zero economy presents economic and social opportunities.
- **Energy security** - Net-zero strategies involve diversifying energy sources and reducing reliance on fossil fuels, thereby improving a region's energy security.

India stands 4th globally in renewable energy installed capacity, according to the International Renewable Energy Agency.

- **Employment generation** - Emerging industries like renewable energy, green infrastructure, and carbon capture and storage (CCS) will generate new employment opportunities.
- **Environmental protection** - The transition to net zero benefits the environment as it requires responsibly using and preserving natural resources.
- **Attracts investment** - Investors increasingly consider environmental, social, and governance (ESG) factors when making investment decisions.

What are the challenges to achieve net zero?

- **Resource limitations –** India's large population and limited resources present significant challenges.
- Achieving net-zero will require substantial land for renewable energy projects.
- **Financial constraints –** Achieving net zero demands significant investment in renewable energy, technological advancements, and infrastructure development.
- Decarbonization in agriculture, cement and steel sectors, requires high costs.
- **Technological gaps** – India's limited capacity to access the advanced technologies in green energy will hinder path net zero.
- **High dependence on fossil fuels –** Around 50% energy needs is sourced from coal energy.
- **Growing energy demand** – Estimated power demand could increase nine- to tenfold by 2070 and meeting it entirely with renewable energy requires 5,500 GW of solar and 1,500 GW of wind capacity by 2070.
- **Inequality –** The impacts of climate change disproportionately affect economically weaker sections of society.
- According to the World Inequality Database, the emissions of the richest 10% in India are 20 times higher than those of the poorest 10%.

What is the sustainable path for achieving net zero?

- **Energy efficiency** – Promoting energy-efficient appliances and adopting passive design elements in buildings can reduce reliance on energy-intensive air-conditioning and heating systems.

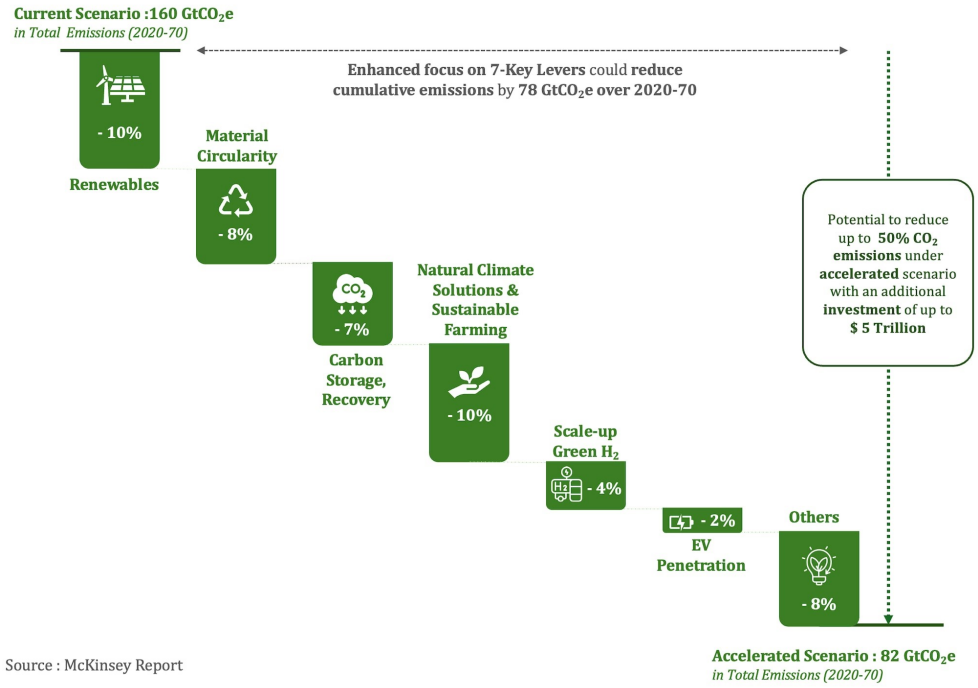
Passive design strategies are energy-efficient and environmentally friendly ways

to use a building's natural surroundings to improve indoor comfort and reduce energy consumption

- **Sustainable transport –** Encouraging public transportation and promoting electric vehicles and railways can cut emissions in urban areas.
- **Mindful consumption –** Encouraging locally produced goods and mindful dietary choices can reduce freight induces carbon foot prints.
- Life movement for adoption of environment-conscious lifestyle which focus on individual behavioural change towards climate change.
- **Policy measures** – Scaling up renewable energy production through policy measures and addressing issues in bottlenecks in policy execution.

PM Surya Ghar Muft Bijli Yojana, which promotes rooftop solar installations, are pivotal in decentralizing energy production and reducing dependency on fossil fuels.

- **Renewable energy adoption –** Through budgetary allocation more emphasis on sources like solar, wind, hydro, geothermal, and biomass to generate electricity.
- **Viability gap funding –** The government has expanded the provision of financial support by means of viability gap funding for public-private partnerships (PPPs) in infrastructure projects.
- **Creating more carbon sinks -** Increase the number of trees and green spaces to absorb the carbon human activities.
- **Standardizing carbon markets -** Carbon markets are trading schemes that provide financial incentives for climate change mitigation.
- **Nuclear energy –** Expanding nuclear power offers a reliable, low-carbon energy source that complements renewable energy.
- **Innovative technologies –** Investment in energy storage and smart grid technologies will enhance the efficiency and reliability of renewable energy systems.
- **International cooperation –** For addressing complex global challenges, and enabling more effective solutions for achieve the sustainable development.



Source : McKinsey Report

What lies ahead?

- Address the inequity in climate action to achieve sustainable development across all streams.
- Explore alternative funding options for green infrastructure projects.
- Balancing green energy transition along with upliftment of poverty driven population.
- Ensure that economic growth and environmental responsibility go hand in hand.

Reference

[The Hindu | India's Sustainable Path To Achieve Net Zero]

SHANKAR IAS PARLIAMENT
Information is Empowering