Economics of Climate Change in India

For Prelims: Global Climate Risk Index 2021, Climate risk events, World Health Organization (WHO), Heat Stress, International Energy Agency (IEA), Panchamrit, National Action Plan on Climate Change, Perform, Achieve and Trade (PAT) Initiative, The Pradhan Mantri Ujjwala Yojana

For Mains: Impact of Climate Change on India's Macroeconomy, India's Initiatives to Tackle Climate Change.

Why in News?

Over the past months there have been **several stories about how** extreme weather events **have disrupted normal life in India.** The **Global Climate Risk Index 2021** had ranked **India 7th in the list of most affected countries** in terms of exposure and **vulnerability to** climate risk events.

- Climate change being one of the most **pressing challenges of the 21st century** poses significant risks not only to the **environment, human health and** food security, **but also economic development.**

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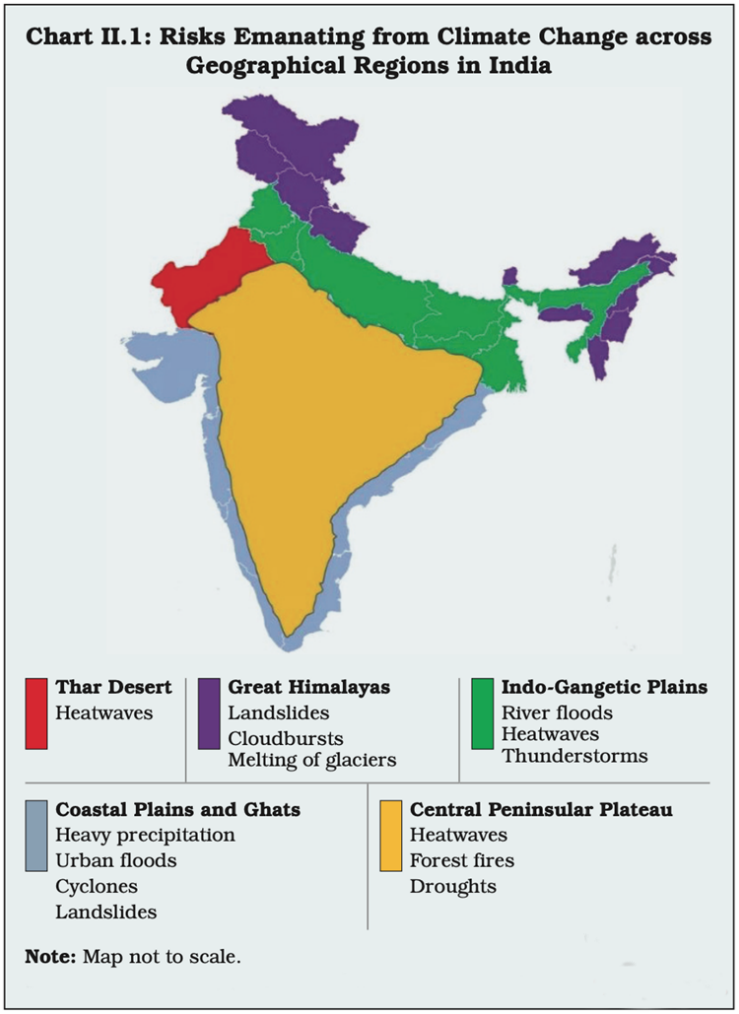

How does Climate Change Affect India's Macroeconomy?

- **About:**
  - Climate change can **adversely affect both the supply side (the productive potential) and the demand side (the consumption and investment) of the economy.**
    - It can also have spillover effects across regions and sectors, as well as **cross-border impacts and contagion risks.**
- **Impacts:**
  - **Reduced Agricultural Output:** Climate change can severely **disrupt crop cycles and cause low agricultural yield due to changes in temperature, precipitation patterns, pest infestation, soil erosion,** water scarcity**,** and extreme weather events such as floods and droughts.
    - Agriculture**, with its allied sectors,** is the largest source of livelihood in India and contributes significantly to the economy. **Low yields can hit the rural economy and push inflation in urban areas as well.**
  - **Disruption of the Fisheries Sector:** Rising sea surface temperatures due to climate change can disrupt the **distribution and behaviour of fish species.**
    - **Some species may move to cooler waters or shift their migratory patterns,** affecting the availability of fish in certain regions. This can **lead to changes in fish catch composition and abundance, impacting the livelihoods of fishermen.**
  - **Increased Health Costs:** Climate change can increase the **incidence and severity of diseases such as malaria, dengue, cholera, heat stroke, respiratory infections,** and mental stress.
    - It can also **affect the nutrition and well-being of vulnerable groups such as**

children, women, elderly, and poor. Health costs can reduce disposable income, lower labour productivity, and increase public expenditure.
        - According to the WHO**, between 2030 and 2050**, climate change is expected to **cause approximately 2,50,000 additional deaths per year, from malnutrition, malaria, diarrhoea and** heat stress.
    - **Damaged Infrastructure**: Climate change can damage physical infrastructure such as **roads, bridges, railways, ports, airports, power plants, water supply systems,** and buildings due to sea level rise**, coastal erosion, landslides, storms, floods, and heat waves.**
        - Damaged infrastructure can disrupt **economic activity, trade, and connectivity and increase maintenance and replacement costs.**
        - **For instance,** India **spent USD 3 bn of economic damage caused by floods in the last decade** which is 10% of the global economic loss.
    - **Reduced Industrial Output:** Climate change can **increase operational costs** and reduce profits in the industrial sector due to factors such as new **climate-friendly regulations, reduced utilisation of old stock,** relocation of production processes and activities due to climate-related losses.
        - India could contribute to **34 million out of 80 million global job losses due to heat stress-associated productivity decline by 2030.**
    - **Energy Crisis:** According to the the **International Energy Agency (IEA),** India's primary energy demand will double by 2030.
        - Energy and climate share a distinctive relationship such that rising temperatures demand a surge in energy usage to assist the process of mitigating the heat effects.
    - **Impact on Financial Services:** Climate change can put pressure on financial services due to increased **credit risk** for banks and financial institutions. It can **affect borrowers' ability to repay loans due to climate-related events such as floods, hurricanes, or droughts.**
        - These events can damage properties, **disrupt supply chains, and impact businesses' profitability, potentially leading to loan defaults and credit losses.**
        - It can also **increase insurance claims and disrupt travel and hospitality services** due to reduced demand, cancellations, and safety concerns.

What are India's Initiatives to Tackle Climate Change?

- **Panchamrit**: India has presented the following five nectar elements (Panchamrit) of India's climate action:
    - **Reach 500 GW Non-fossil energy capacity by 2030.**
    - **50% of its energy requirements from renewable energy by 2030.**
    - **Reduction of total projected carbon emissions by 1 billion tonnes from now to 2030.**
    - **Reduction of the carbon intensity of the economy by 45% by 2030, over 2005 levels.**
    - **Achieving the target of net zero emissions by 2070.**
- **National Action Plan on Climate Change:**
    - It aims at creating awareness among the representatives of the public, different agencies of the **government, scientists, industry and the communities** on the threat posed by climate change and the steps to counter it.

What More can India do to Combat the Impacts of Climate Change?

- **Enhancing Carbon Sequestration:** India can enhance its **carbon sequestration** potential by expanding its **forest and tree cover**, **restoring degraded lands, promoting agroforestry, and adopting low-carbon farming practices.**
    - Carbon sequestration can **not only offset emissions but also provide multiple co-**

benefits such as biodiversity **conservation, soil fertility improvement, water security,** livelihood support, and disaster risk reduction.

- **Building Climate Resilience**: India can build its climate resilience by strengthening its disaster management systems, improving its early warning and forecasting capabilities, **investing in climate-proof infrastructure, developing** climate-smart agriculture**, enhancing health care services, and empowering local communities** and institutions.
- **Driving India's Green Transportation Revolution:** There is a need to **promote** electric vehicles (EVs) by establishing a robust charging infrastructure network and offering incentives for EV adoption.
    - Introducing **innovative public transportation solutions such as electric buses, shared mobility services, and smart traffic management systems** can reduce congestion and emissions.
- **Climate Smart Agriculture**: There is a need to **encourage sustainable farming** practices by promoting organic farming, agroforestry, and precision agriculture.
    - Integrating technology-driven solutions such as **remote sensing,** IoT devices**, and AI-based analytics can optimise resource utilisation, reduce water consumption, and enhance crop productivity.**

UPSC Civil Services Examination, Previous Year Question (PYQ)

Prelims

Q.1 In the context of India's preparation for Climate-Smart Agriculture, consider the following statements: (2021)

1. The 'Climate-Smart Village' approach in India is a part of a project led by the Climate Change, Agriculture and Food Security (CCAFS), an international research programme.
2. The project of CCAFS is carried out under Consultative Group on International Agricultural Research (CGIAR) headquartered in France.
3. The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in India is one of the CGIAR's research centres.

Which of the statements given above are correct?

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

Ans: (d)

Q.2 Which of the following best describes/describe the aim of 'Green India Mission' of the Government of India? (2016)

1. Incorporating environmental benefits and costs into the Union and State Budgets thereby implementing the 'green accounting'.
2. Launching the second green revolution to enhance agricultural output so as to ensure food security to one and all in the future.
3. Restoring and enhancing forest cover and responding to climate change by a combination of adaptation and mitigation measures.

Select the correct answer using the code given below.

(a) 1 only
(b) 2 and 3 only
(c) 3 only
(d) 1, 2 and 3

Ans: (c)

Q.3 With reference to 'Global Climate Change Alliance', which of the following statements is/are correct? (2017)

1. It is an initiative of the European Union.
2. It provides technical and financial support to targeted developing countries to integrate climate change into their development policies and budgets.
3. It is coordinated by World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD).

Select the correct answer using the code given below:

(a) 1 and 2 only
(b) 3 only
(c) 2 and 3 only
(d) 1, 2 and 3

Ans: (a)

Mains

Q.1 Describe the major outcomes of the 26th session of the Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC). What are the commitments made by India in this conference? **(2021)**

Q.2 'Climate Change' is a global problem. How will India be affected by climate change? How Himalayan and coastal states of India will be affected by climate change? **(2017)**

Source: IE