



Mains Practice Question

Q. Discussing the impacts of Micro Climatic zones shifting in India, suggest measures required to mitigate its impact. (250 words)

05 Jan, 2021 GS Paper 1 Geography

Approach

- Briefly explain the Micro climatic zones shifting in India.
- Discuss the impact of Micro climatic zones shifting.
- Suggest measures to combat the impacts of Micro climatic zones shifting.
- Write a forward looking conclusion.

Introduction

- The microclimates of a region are defined by the moisture, temperature, and winds of the atmosphere near the ground, the vegetation, soil, and the latitude, elevation, and season. Weather is also influenced by microclimatic conditions
- Microclimatic zones are shifting across various districts of India. A shift in microclimate zones may lead to severe disruptions across sectors. For example: every 2 degrees Celsius rise in annual mean temperature will reduce agricultural productivity by 15-20%.
- Some reasons identified behind this shift in microclimatic zones is change in land-use patterns, deforestation, encroachments upon mangroves, disappearing wetlands and natural ecosystems by encroachment, and urban heat islands that trap heat locally.

Body

Impact of Micro Climatic zones shifting

- **Increase in frequency, intensity, and unpredictability of extreme events:** While India witnessed 250 extreme climate events in 35 years between 1970 and 2005, it recorded 310 such weather events in only 15 years since then.
 - With an unusual spike in extreme events since 2005, these districts are bearing the effects of changing microclimate with loss of property, livelihoods and lives.
- **Loss of lives and property:** Extreme weather events resulting from climate change led to 4,95,000 human deaths across the world in 1999-2018. More than 12,000 extreme weather events led to losses worth USD 3.54 trillion (measured in terms of purchasing power parity or PPP) during this period. The current trend of catastrophic climate events results from a mere 0.6 degrees Celsius temperature rise in the last 100 years.

Measures to mitigate impacts of Micro Climatic zones shifting

- Develop a **Climate Risk Atlas** to map critical vulnerabilities such as coasts, urban heat stress, water stress, and biodiversity collapse.
- Develop an **Integrated Emergency Surveillance System** to facilitate a systematic and sustained response to emergencies.

- Building Sustainable and **Environmentally-friendly Cities**.
- **Legislating laws** that plan and provide environmentally sound cities and smart growth.
- **Mainstream risk assessment** at all levels, including localised, regional, sectoral, cross-sectoral, macro and micro-climatic level.
- **Enhance adaptive and resilience capacity** to climate-proof lives, livelihoods and investments.
- **Increase the participatory engagement** of all stakeholders in the risk assessment process.
- **Integrate risk assessment** into local, sub-national, and national level plans.

Conclusion

According to the Council on Energy, Environment and Water (CEEW), India is already the 5th most vulnerable country globally in terms of extreme climate events, and it is all set to become the world's flood capital. Thus, India needs to take immediate steps taking cognisance of the report "Preparing India for Extreme Climate Events" released by CEEW, so that India is well equipped and prepared to mitigate the vulnerabilities from Micro Climatic zones shifting.

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