

## CLIMATE PHYSICAL RISKS - ENVIRONMENT

NEWS: India faces increasing climate-induced disasters with over **80% of its population residing in high-risk districts**, but adaptation strategies remain reactive due to fragmented risk assessments.

### WHAT'S IN THE NEWS?

#### Understanding Climate Physical Risks (CPRs)

- **Definition:**  
Climate Physical Risks refer to long-term risks arising from climate change that impact physical systems and human societies.
- **Types of CPRs:**
  - **Acute shocks:** Sudden, severe events such as **floods, cyclones, and heatwaves**.
  - **Chronic stresses:** Long-term changes including **droughts, altered monsoon patterns, and sea-level rise**.
- **Cascading Impacts:**  
CPRs are not confined to weather events alone; they result in widespread effects on **infrastructure, agriculture, human health, ecosystems, water security, and national security**.

#### Determinants of Climate Physical Risk (As per IPCC)

- **Hazard:**  
The intensity and frequency of extreme climate-related events like **storms, floods, droughts, and heatwaves**.
- **Exposure:**  
Refers to the **populations, assets, ecosystems, and infrastructure** that are in harm's way.
- **Vulnerability:**  
Indicates the **degree to which systems can withstand or recover** from climate-related events. It depends on socio-economic status, governance capacity, and institutional readiness.

#### Beyond Weather Forecasting – The Need for Long-Term Modelling

- **Limitation of Current Forecasting:**  
Traditional weather forecasts are short-term and cannot address **slow-onset risks or systemic vulnerabilities**.
- **Requirement:**  
CPR assessment calls for **long-term climate modelling**, trend analysis, and **localised projections** based on geographic and demographic sensitivities.

#### Global Agreements Supporting CPR Management

##### a. Paris Agreement (2015)

- **Article 7 Focus on Adaptation:**  
Mandates all parties to undertake **adaptation planning and actions** to reduce vulnerability to climate physical risks.

- **National Adaptation Plans (NAPs):**

Countries are encouraged to prepare and implement NAPs that integrate **scientific CPR assessments** into national development strategies.

**b. Sendai Framework for Disaster Risk Reduction (2015–2030)**

- **Comprehensive Risk Reduction Strategy:**

Aims to reduce disaster losses through **risk-informed investments, early-warning systems, and institutional capacity-building**.

- **Emphasises Multi-Hazard Approaches:**

Focuses on both natural and climate-induced hazards in a **holistic and integrated manner**.

**Key Challenges in Setting Up a CPR Framework**

**a. Fragmented Risk Assessments**

- India's CPR studies are conducted by multiple institutions (e.g., **IIT Gandhinagar, IMD, NIDM**) using **diverse methodologies**, leading to inconsistent results.
- **Policy Disconnect:** The fragmented landscape hampers coherent policymaking and private sector planning.

**b. Lack of Standardised Climate Risk Data**

- Tools like flood hazard maps and vulnerability atlases exist but are **not integrated** into a **national database**.
- Absence of **standardised metrics** and **open-access repositories** weakens risk-based planning and investment.

**c. Underfunding of Adaptation**

- In 2022, **less than 25%** of global climate finance was allocated to adaptation.
- Mitigation (e.g., emission reductions) receives **disproportionate funding**, leaving CPR frameworks under-resourced.

**d. Reactive vs. Proactive Approach**

- India's adaptation strategies have been largely **reactive**, focusing on post-disaster relief rather than **anticipating and reducing vulnerabilities**.

**e. Modelling Limitations**

- Climate models like **RCPs** and **SSPs** are not adequately **downscaled** to reflect **India's hyper-local climatic zones**.
- Even globally, advanced economies struggle—for example, the **U.S. faces difficulties in simulating localised sea-level rise and storm surges** in places like Miami.

**f. Political and Policy Discontinuity**

- Frequent **shifts in political leadership and administrative priorities** interrupt long-term climate adaptation strategies and institutional memory.

**Regulatory and Institutional Responses in India**

**a. RBI's Draft Disclosure Framework on Climate-Related Financial Risks (2024)**

- **Mandate:** Issued under the Banking Regulation Act, 1949, to monitor and manage **climate-related financial risks**.
- **Rationale:** Addresses the potential economic and financial threats arising from both **climate impacts** and **transition risks** (from mitigation policies).
- **Applicability:** Covers **Scheduled Commercial Banks** (except LABs, Payments Banks, RRBs), **Tier-IV Urban Co-operative Banks**, **All-India Financial Institutions**, and **large NBFCs**.
- **Expected Outcomes:** Improved **risk transparency**, **stakeholder trust**, and alignment with **international sustainability standards**.

#### **b. Private Sector Hesitancy**

- Businesses often see climate disclosure as **a compliance burden**.
- According to a 2022 **CDP survey**, only **41% of global firms** had quantified climate-related financial risks.

#### **c. SEBI's ESG Disclosures**

- SEBI encourages listed entities to report on **Environmental, Social, and Governance (ESG)** risks, including climate exposures, as part of their **Business Responsibility and Sustainability Reports (BRSR)**.

### **Way Forward: Strategies to Strengthen CPR Assessment and Action**

#### **1. Unified National CPR Framework**

- Establish a national system to **synthesise risk data** from institutions like IMD, NIDM, and academia using **standardised methods and indicators**.

#### **2. Centralised Climate Risk Data Hub**

- Develop a real-time, geo-tagged national platform for **localised CPR data** to guide **public and private sector planning**.

#### **3. Enhance Regulatory Mandates**

- Make **climate risk disclosures mandatory** across all financial institutions, aligning with **IFRS ISSB S2 standards**.

#### **4. Invest in Adaptation Infrastructure**

- Prioritise funding for **flood-resilient housing**, **drought-proof agriculture**, and **local early-warning systems**, with emphasis on **public-private partnerships**.

#### **5. Strengthen Role of Financial Institutions**

- Ensure banks, NBFCs, and insurers incorporate CPRs into **risk assessments**, **lending**, and **investment decisions**.

#### **6. Adopt International Best Practices**

- Countries like the **U.S.**, **U.K.**, and **New Zealand** have adopted **national CPR frameworks** integrated with financial regulation.

- India must tailor and adopt similar models to **embed CPR considerations in governance and fiscal decision-making**.

## 7. Ensure Policy Continuity

- Create **permanent climate risk bodies** and legislative safeguards to maintain long-term CPR planning across political changes.

## Conclusion

- For India to realise the vision of **Viksit Bharat by 2047**, it must institutionalise a **unified, science-driven framework** for assessing and managing Climate Physical Risks.
- Such a framework is critical to protecting **lives, ecosystems, infrastructure, and economic growth** from intensifying climate threats.