India-China Climate Cooperation Can Build Strategic Trust Through Shared Climate Risks, Resilience and Disaster Management

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Recent Developments:

• April 2026 Climate Dialogue: India's MEA Secretary (West) Sibi George met China's Special Envoy for Climate Change LiZhenmin in New Delhi on 28 April 2026 to exchange views on the global climate agenda. India reiterated its constructive engagement under the UNFCCC and Paris Agreement

• Emerging Opportunity: The interaction assumes significance because climate resilience, disaster management and adaptation offer relatively low-risk areas for engagement even when strategic and security differences persist

• Himalayan Warning: The ICIMOD Glacier Outlook 2026 found that glacier ice-loss rates in the HindKush Himalaya (HKH) have accelerated sharply since 2000, increasing risks to water security and Glacial Lake Outburst Floods (GLOFs)

• Snowpack Stress: HKH snow persistence in 2026 was 27.8% below the long-term average, marking the fourth consecutive year of below-normal snow conditions and creating risks for downstream water availability

• Shared Vulnerability: India and China face overlapping risks from floods, heatwaves, glacier retreat, extreme precipitation, coastal hazards and water insecurity, creating scope for practical climate cooperation

Shared Climate Vulnerabilities of India and China:

Urbanisation, Wetlands and Flooding:

• Rapid urbanisation has increased impervious surfaces and reduced the natural capacity of wetlands, floodplains and urban drainage systems to absorb intense rainfall

• Extreme precipitation can therefore produce severe urban flooding when drainage infrastructure is unable to handle sudden rainfall concentrations

• India's major cities and China's rapidly urbanising regions consequently face similar challenges involving stormwater management, wetland protection and urban resilience

• China's Sponge City approach, based on permeable surfaces, green infrastructure, rainwater retention and ecological drainage, offers useful lessons for Indian cities

HindKush Himalaya and Cryosphere Risks:

• The HindKush Himalaya functions as a major Asian water tower and supports river systems on which nearly two billion people depend

• ICIMOD’s 2026 assessment indicates that HKH glaciers lost about 12% of their area between 1990 and 2020, while glacier wastage has accelerated after 2000

• Accelerating glacier retreat can initially increase flood risks and later contribute to seasonal water shortages as long-term ice reserves decline

• Glacier retreat and expanding glacial lakes increase the probability of GLOFs, while extreme precipitation and ice or rock avalanches can act as major triggers

• Transboundary river systems such as the Yarlung Tsangpo–Brahmaputra therefore connect climate resilience with water security, disaster preparedness and regional diplomacy

Heatwaves, Floods and Coastal Risks:

• Both countries increasingly experience compound climate risks, where prolonged heatwaves may be followed by intense rainfall, flash floods or other hazards

• Highly populated coastal regions face additional exposure to sea-level rise, storm surges, extreme precipitation and coastal flooding

• Climate-related disasters can simultaneously affect agriculture, public health, infrastructure, livelihoods and supply chains, converting environmental shocks into economic risks

Historical Basis of India-China Climate Cooperation:

Institutional and Bilateral Cooperation:

• India and China have previously established mechanisms for cooperation in climate change, environmental protection, disaster management and sustainable development

• A 2012 India-China MoU on climate-friendly green technologies envisaged cooperation in clean energy, energy efficiency, renewable energy, sustainable transport, electric vehicles and modernisation of electricity grids

• The same mechanism provided for exchanging information on technology needs, advanced climate-friendly technologies and joint research and development

• The two countries have also cooperated through the Strategic and Economic Dialogue, including areas such as sustainable urban development, resource efficiency and environmental management

• A long-standing bilateral framework has recognised disaster management cooperation, including knowledge exchange, training, early-warning systems and disaster-prevention practices

Multilateral Climate Cooperation:

• India and China are founding members of the BASIC Group, comprising Brazil, South Africa, India and China, which coordinates positions on major international climate negotiations

• Both countries have frequently emphasised climate equity, developmental needs, climate finance and Common but Differentiated Responsibilities (CBDR) in global climate diplomacy

• Cooperation through BRICS, G20 and UNFCCC processes can provide platforms for pursuing common positions without requiring complete resolution of bilateral disputes. India’s MEA also recognises India-China cooperation on climate change and sustainable development in multilateral forums

Major Challenges to India-China Climate Cooperation:

Strategic Mistrust:

• The border tensions since 2020 have weakened political trust and reduced the space for broader bilateral cooperation

• Climate cooperation can also become vulnerable when scientific or environmental information has strategic implications, particularly concerning transboundary rivers and Himalayan ecosystems

Transboundary Water Concerns:

• The Yarlung Tsangpo–Brahmaputra system is particularly sensitive because hydrological changes in the Tibetan Plateacan affect downstream water availability and disaster risks

• Greater cooperation requires predictable, timely and technically reliable hydrological information sharing, especially during extreme rainfall and flood events

Green Technology Competition:

• China has major capabilities in solar manufacturing, batteries, electric vehicles and critical-mineral processing, while India seeks to strengthen domestic manufacturing through Atmanirbhar Bharat

• Excessive dependence on a single external supplier for strategic green technologies can create energy-security and supply-chain vulnerabilities

• At the same time, excessive restrictions can raise the cost and slow the pace of India’s clean-energy transition

Regulatory and Investment Barriers:

• India’s Press Note 3 of 2020 introduced additional scrutiny for investments from countries sharing a land border with India, affecting Chinese investment flows

• Chinese controls over selected critical minerals and processing technologies can create additional uncertainty for global clean-energy supply chains

• These restrictions demonstrate the tension between national security, economic resilience and climate-transition requirements

Implementation Deficit:

• Earlier city-level and institutional cooperation has not always translated into sustained projects because of changing diplomatic conditions

• The major requirement is therefore not merely creating new agreements but ensuring institutional continuity, measurable targets and technical-level engagement

Why Climate Cooperation Matters for India:

Climate Finance and Technology:

• India’s large-scale climate-transition and adaptation requirements require access to concessional finance, private capital, blended finance and advanced technologies

• Cooperation with developed partners can support India in areas such as green hydrogen, offshore wind, energy storage, electric mobility and climate-resilient infrastructure

• Partnerships with countries such as Japan, Germany, France, the UK, Denmark and the EU provide complementary sources of technology, finance and institutional capacity

Strategic and Diplomatic Benefits:

• Climate diplomacy can create functional cooperation even when high-politics issues remain difficult

• Demonstrating constructive climate leadership strengthens India's position as a representative voice of the Global South

• Climate cooperation also reinforces India's advocacy for equitable climate finance, technology transfer and CBDR

Potential Areas for India-China Cooperation:

Disaster Risk Reduction:

• Establish dedicated channels for early-warning information, flood forecasting, extreme-weather alerts and disaster-response coordination

• Exchange technical expertise on flash floods, landslides, GLOFs, urban flooding and emergency management

• Build joint capacity through scientific workshops, training programmes and simulation exercises

Himalayan Scientific Cooperation:

• Develop continuous glaciological and hydrological monitoring of the HKH through satellite observations, remote sensing and ground-based measurements

• Promote standardised scientific methodologies for monitoring glacier mass balance, snow cover, glacial lakes and river discharge

• Strengthen data-sharing arrangements to improve forecasting of GLOFs, floods and water availability

Urban Climate Resilience:

• Promote city-to-city exchanges on wetland conservation, sponge-city infrastructure, rainwater management, wastewater treatment and heat-resilient urban planning

• Indian cities can study China's experience with sponge cities, while Chinese cities can examine India's community-oriented Heat Action Plans

• Such cooperation should prioritise technical knowledge rather than politically sensitive strategic sectors

Agriculture and Water Security:

• Exchange best practices in climate-resilient agriculture, drought management, water-use efficiency and precision irrigation

• Develop joint research on climate impacts on crop productivity, soil moisture, river flows and agricultural livelihoods

• Climate-smart agriculture can serve as a relatively low-politics area of cooperation

Multilateral and Minilateral Platforms:

• Use BRICS, BASIC, G20 and UNFCCC platforms to coordinate positions on climate finance, adaptation and technology transfer

• Multilateral engagement can reduce the political sensitivity associated with direct bilateral cooperation

• The two countries can jointly advocate stronger adaptation finance and greater access to affordable climate technologies for developing countries

Way Forward for India-China Climate Cooperation:

Adopt a Low-Politics Approach:

• Begin with disaster management, early-warning systems, scientific research, urban resilience and sustainable agriculture rather than strategically sensitive green-technology supply chains

• Keep climate cooperation institutionally insulated from fluctuations in border and security relations wherever possible

Build Data-Based Cooperation:

• Establish regular mechanisms for exchanging meteorological, hydrological, glaciological and disaster-risk information

• Use satellite data, remote sensing, artificial intelligence and geospatial technologies to improve regional climate-risk assessment

Strengthen Subnational Engagement:

• Revive city-to-city and state-to-province exchanges focused on practical climate solutions

• Encourage universities, research institutions, municipalities and scientific agencies to develop joint technical projects

Develop Resilient Green Supply Chains:

• Cooperation should gradually expand towards renewable-energy components, batteries, critical minerals and clean technologies after addressing concerns regarding strategic dependence

• India should simultaneously diversify suppliers and strengthen domestic manufacturing and recycling capabilities

Create Sustainable Climate-Finance Mechanisms:

• Promote green municipal bonds, blended finance, climate-risk insurance and public-private partnerships for adaptation projects

• India and China can jointly push for a more accessible Global South climate-finance architecture through multilateral institutions

Significance for UPSC:

• Essay: Climate change can function as a bridge between geopolitical competitors because shared environmental risks transcend political boundaries

• International Relations Concept: The issue illustrates the distinction between high politics involving security and territorial disputes and low politics involving technical and functional cooperation

Value Addition for UPSC:

Key Conceptual Framework:

• Climate Security Nexus: Climate change can amplify risks to water, food, health, livelihoods and economic stability, thereby becoming a national-security concern

• Low-Politics Cooperation: Technical sectors such as early-warning systems, disaster management and scientific data exchange can maintain diplomatic engagement when strategic relations remain strained

• Transboundary Climate Governance: Climate risks affecting shared ecosystems and river basins require cooperative monitoring, information sharing and coordinated adaptation

• Sponge Cities: Urban planning model that uses permeable surfaces, wetlands, green spaces and water-retention systems to manage stormwater naturally

• GLOF: A sudden release of water from a glacial lake, capable of producing destructive downstream flooding

• CBDR: The principle that all states share responsibility for addressing climate change but have different responsibilities and capabilities, reflecting historical emissions and developmental circumstances

Data Points for Answers:

• HKH glacier area declined by about 12% between 1990 and 2020

• HKH glacier wastage has accelerated significantly since 2000

• HKH snow persistence in 2026 was 27.8% below the long-term average

• Nearly two billion people depend on water systems originating in the HKH region

• India-China climate dialogue resumed at the official level in April 2026, with discussions on the global climate agenda under the UNFCCC and Paris Agreement

Mains-Ready Conclusion:

• India-China climate cooperation should not be viewed as a substitute for resolving strategic differences, but as a pragmatic mechanism for managing shared vulnerabilities, preserving regional ecological security and creating incremental trust through functional cooperation