



Research Paper

"Climate Collaboration: Uniting India and the EU in Sustainable Strategies for 21st Century Environmental Challenges"

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Abstract

The 21st century is marked by unprecedented environmental such as resource depletion, biodiversity loss, and climate change – issues that cut across national boundaries and call for creative and cooperative solutions. This study looks at how India and the EU, two powerful players with different socioeconomic realities but increasingly similar environmental goals, are collaborating on climate change. By examining programs like the International Solar Alliance and frameworks like the India-EU Clean Energy and Climate Partnership, the paper assesses the evolution, achievements, and hurdles of this relationship. It underscores how joint efforts in clean energy, sustainable finance, and green technology can shape global climate governance. Ultimately, it argues that a strengthened India-EU partnership is pivotal in realizing the Sustainable Development Goals (SDGs) and advancing principles of global climate justice, thereby setting a precedent for equitable and effective international climate cooperation.

Keywords

India, European Union, Climate Change, Sustainable Development, Energy Transition, Global Governance, Climate Diplomacy, SDGs

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I. Introduction

The climate crisis is arguably the defining challenge of our time. From rising sea levels to extreme weather events, its impacts are global and interconnected, necessitating robust international cooperation. As emerging and established powers, respectively, India and the European Union occupy strategic positions in shaping the contours of global climate governance.

India, home to over 1.4 billion people, faces the dual task of pursuing rapid economic growth while addressing poverty alleviation, infrastructure deficits, and energy demands. Simultaneously, the EU — as a bloc of 27 advanced economies — has historically championed ambitious climate policies and technological innovation. Despite their differing socio-economic contexts, both recognize that sustainable development and climate resilience are shared imperatives.

Research Objectives

- To examine the historical evolution of India-EU climate cooperation.
- To analyze key areas of collaboration (clean energy, climate finance, green technologies).
- To assess challenges and opportunities in their partnership.
- To evaluate how India and EU collaborate to influence global climate governance.

Historical Background of India-EU Climate Cooperation

The relationship within India and the European Union (EU) has steadily matured over the decades, transforming from a mostly trade- and diplomatic-focused interaction into a complete strategic relationship that now notably includes collaboration on sustainable development and climate change. In 1963, formal diplomatic relations were established, setting the stage for a conversation that would gradually grow in breadth and aspirations. The establishment of the India-EU Strategic Partnership in 2004 was a turning point. In order to

confront common global issues like climate change, this strategic alliance expanded the connection beyond trade and economic cooperation to include political discourse, security collaboration, and global governance.

A significant leap in their climate cooperation occurred in 2016 with the setting up of the **India-EU Clean Energy and Climate Partnership**. Collaboration in coordinating energy policy, advancing renewable energy, improving energy efficiency, and creating sustainable technology was formalized under this framework. In addition to being global imperatives, the partnership emphasized both parties' understanding that climate change mitigation and the transition to clean energy are areas where their respective strengths—the EU's technological know-how and India's sizable and expanding energy market—could be combined for mutual gain.

Several key milestones have since shaped and reinforced this evolving climate partnership. During the negotiations of the **Paris Agreement in 2015**, both India and the EU played constructive and pivotal roles. India emphasized climate justice and the principle of **Common but Differentiated Responsibilities (CBDR)**, ensuring that the global accord remained inclusive and sensitive to developmental concerns, while the EU championed ambitious climate targets and robust transparency frameworks. Together, their collaboration contributed to the adoption of an inclusive, legally binding global climate accord.

Building on this momentum, the **EU-India Roadmap 2025** was unveiled, serving as a comprehensive blueprint for deepening cooperation in areas such as climate action, clean energy transition, green technology exchange, and sustainable urbanization. This roadmap reaffirmed long-term commitment and set tangible goals to advance joint efforts in addressing environmental challenges.

A significant reinforcement of this partnership came during the **India-EU Leaders' Meeting in 2021**, a pivotal summit that underscored the mutual commitment to multilateralism and a sustainable, resilient post-pandemic recovery. Leaders reaffirmed their shared vision of a green and inclusive growth trajectory and emphasized closer collaboration in green finance, clean technologies, and resource efficiency. The summit reinforced that India and the EU, despite their differing socio-economic contexts, converge on the understanding that global environmental challenges require collective solutions anchored in equity, innovation, and shared responsibility. Thus, over time, climate cooperation has become not just a pillar of India-EU relations but also a testament to how partnerships between emerging and developed economies can drive global sustainability.

Key Areas of India-EU Climate Collaboration

The climate collaboration between the European Union (EU) and India is anchored in several pivotal areas where both actors leverage their complementary strengths to address environmental challenges and accelerate the global transition towards sustainability. A cornerstone of their collaboration lies in the shift to **clean energy**, which is acknowledged by both parties as being essential to lowering greenhouse gas emissions and reliance on fossil fuels. This dedication is shown by India's leadership in the **International Solar Alliance (ISA)**. In order to improve energy access and climate resilience, the ISA, a flagship project led by India, seeks to encourage the deployment of solar energy across the Global South. In order to promote solar infrastructure and innovation, the EU has been a staunch backer of the ISA, providing financial aid, policy support, and technical knowledge.

The **EU-India Energy Panel** serves as a structured and dynamic dialogue platform that fosters deepened collaboration across various clean energy sectors. Through this panel, India and the EU engage in joint research, policy coordination, and capacity-building initiatives in smart grids, offshore wind energy, bioenergy, energy efficiency, and emerging technologies like green hydrogen. Furthermore, the partnership has catalyzed joint investments and research and development (R&D) in large-scale renewable energy projects such as solar parks, wind farms, and bioenergy plants across India, thereby accelerating the transition towards affordable, reliable, and sustainable energy systems.

India-EU collaboration also significantly advances several **Sustainable Development Goals (SDGs)**, underscoring the development-climate nexus. Specifically, their joint initiatives directly contribute to **SDG 7 (Affordable and Clean Energy)** by promoting renewable energy deployment and facilitating policy exchanges that foster inclusive energy access. **SDG 13 (Climate Action)** is addressed through coordinated efforts in climate change mitigation, adaptation strategies, and resilience-building, helping both partners to not only meet their nationally determined contributions (NDCs) under the Paris Agreement but also support broader global climate objectives. Additionally, **SDG 17 (Partnerships for the Goals)** is exemplified in collaborative platforms such as India's **Smart Cities Mission**, where the EU's expertise in sustainable urban planning, waste management, and green infrastructure complements India's urbanization strategies.

Another key area of cooperation is **climate finance and green technologies**, where the **European Investment Bank (EIB)** has emerged as a crucial financier. The EIB has provided over €4 billion in loans and financial support for renewable energy, energy efficiency, and sustainable infrastructure projects in India, contributing to decarbonization efforts while enhancing energy security. Technology transfer and innovation are central to this dimension, with joint ventures advancing clean mobility solutions such as electric vehicles, green hydrogen production, and the development of clean mobility infrastructure. Innovative **blended finance models**, which combine public funds with private capital through risk-sharing mechanisms, have been instrumental in

mobilizing investments to support India's burgeoning clean energy market, creating scalable solutions that attract global investors.

Finally, collaboration in **circular economy and biodiversity conservation** highlights a holistic approach to sustainable development. The **India-EU Resource Efficiency Initiative**, launched in 2017, promotes sustainable consumption and production by embedding circular economy principles across sectors, encouraging resource efficiency, waste minimization, and sustainable value chains. Complementing these efforts, India and the EU engage in joint projects focused on biodiversity conservation, sustainable agriculture, afforestation, and pollution control. Through knowledge exchange, funding support, and policy dialogue, these initiatives contribute to preserving ecosystems, enhancing carbon sinks, and fostering sustainable livelihoods — aligning both partners' climate actions with ecological sustainability and socio-economic inclusivity.

Opportunities and Challenges in India-EU Climate Partnership

The India-EU climate partnership stands at a pivotal juncture, offering numerous opportunities to deepen and broaden collaboration while also grappling with structural and strategic challenges that need careful navigation. Among the foremost opportunities is the convergence of **complementary strengths**. India's vast and rapidly expanding renewable energy market, driven by ambitious national targets for solar, wind, and green hydrogen, provides ideal environment for cooperation with the European Union, which brings cutting-edge technological expertise, robust regulatory frameworks, and substantial financial resources. This synergy can accelerate the deployment of advanced clean energy solutions, fostering mutual benefits in innovation, investment, and capacity-building. Moreover, both India and the EU are staunch advocates of **shared multilateralism**, upholding the values of a rules-based international order and a commitment to **SDG-driven global governance**. Their alignment in supporting inclusive, democratic, and sustainable global institutions reinforces joint efforts in shaping equitable international climate regimes and advancing cooperative climate diplomacy. Emerging areas of cooperation offer further avenues to strengthen the partnership. There is significant scope to collaborate in **carbon markets**, leveraging mechanisms such as carbon pricing, emissions trading systems, and offset schemes that can drive cost-effective emission reductions. The **blue economy**, focused on the sustainable use of ocean resources, represents another promising frontier where India and the EU can jointly develop marine renewable energy, sustainable fisheries, and coastal resilience strategies. In addition, the convergence of **digitalization and green solutions** — such as artificial intelligence-driven energy efficiency technologies, smart grids, and digital monitoring of emissions — offers innovative pathways to enhance climate action while promoting economic modernization.

However, despite these prospects, the partnership also faces **significant challenges** that must be carefully managed. A primary hurdle stems from **diverging priorities**, as India's developmental imperatives — including poverty alleviation, energy access, and economic growth — often necessitate a more gradual transition compared to the EU's more stringent and time-bound decarbonization targets. Balancing developmental equity with climate ambition requires nuanced dialogue and flexible policy design. Furthermore, disputes over **technology transfer and intellectual property rights (IPR)** persist as barriers, with India advocating for more accessible and affordable transfer of green technologies while the EU seeks to protect proprietary innovations. Bridging this gap will be crucial to facilitate widespread adoption of advanced technologies in India without undermining innovation incentives.

Another contentious issue is the **trade-climate nexus**, particularly surrounding the EU's proposed **Carbon Border Adjustment Mechanism (CBAM)**. From India's perspective, CBAM could disproportionately impact its exports — especially in carbon-intensive sectors like steel, cement, and aluminum — raising concerns over trade protectionism under the guise of climate action. Dialogue and transitional arrangements will be essential to mitigate potential frictions and ensure conformity with the regulations of the World Trade Organisation (WTO). Lastly, the issue of **equity in climate finance** remains a sticking point, with India emphasizing the requirement for wealthy nations to provide sufficient, steady, and fair climate funding flows, including the EU, to support mitigation and adaptation efforts in the Global South. Addressing these financial asymmetries and fulfilling longstanding commitments on climate finance will be pivotal to sustaining trust and advancing a balanced, mutually beneficial climate partnership.

The Role of India-EU Partnership in Global Climate Governance

Through bilateral collaboration as well as shared influence on multilateral forums, the India-EU alliance has enormous potential to influence and improve global climate governance. The European Union and India are in a unique position to **multilateral climate action**, serving as crucial **bridge-builders between developed and developing nations** within key international fora such as the **United Nations Framework Convention on Climate Change (UNFCCC)**. Their combined weight — with the EU's leadership in global climate diplomacy and India's prominence as a voice of the Global South — enables them to mediate divergent interests and foster inclusive, consensus-driven solutions. Importantly, both partners consistently advocate for **climate justice and equity**, firmly upholding foundational principles like **Common but Differentiated Responsibilities and**

Respective Capabilities (CBDR-RC). By balancing the recognition of historical emissions from industrialized nations with the developmental aspirations and current capabilities of emerging economies, India and the EU help ensure that global climate regimes remain fair, equitable, and sensitive to varying national contexts.

Beyond diplomacy, the India-EU partnership plays a crucial part in **shaping global green norms** that influence standards, regulations, and best practices across countries and regions. Their collaboration contributes to **standard-setting** in critical areas such as renewable energy technologies, sustainable business practices, and green finance — including the development of taxonomies and disclosure frameworks that guide sustainable investments. Such normative leadership not only fosters greater alignment in global markets but also promotes innovation and diffusion of clean technologies worldwide. Furthermore, the partnership extends its reach through **South-South and Triangular Cooperation**, wherein India and the EU jointly implement climate and energy initiatives in third countries, particularly across **Africa and the Indo-Pacific**. These efforts amplify their collective influence, strengthen climate resilience in vulnerable regions, and demonstrate the viability of cooperative, inclusive approaches to global climate challenges. By combining technical expertise, financial resources, and political capital, the India-EU alliance emerges as a vital pillar of **progressive, balanced, and forward-looking global climate governance**.

II. Conclusion

The India-EU climate partnership stands as a compelling model of both developed and developing economies may cooperate constructively to address the pressing challenges of global sustainability. By leveraging their **complementary strengths** — with India offering among the world's largest and fastest-growing renewable energy markets, and the European Union providing cutting-edge green technologies, robust regulatory frameworks, and substantial climate finance — both partners have produced a **synergistic alliance** capable of driving transformative change. In addition to quickening the shift to renewable energy in their particular areas, this partnership establishes a standard for encouraging **climate justice** on a global scale by ensuring that economic growth and environmental sustainability are pursued hand in hand, in line with principles of equity and shared responsibility.

As the climate crisis deepens and the window for decisive action narrows, **strengthening and expanding this partnership** through more intensive **financial, technological, and diplomatic engagement** becomes imperative. Enhanced cooperation in emerging areas such as **green hydrogen, carbon markets, digital green solutions**, and **circular economy strategies** can open new frontiers for sustainable development. Moreover, deepened collaboration on **climate finance, technology transfer, and capacity building** can help bridge the gap between developed and developing nations, making the global transition to a low-carbon economy more inclusive and just. Beyond bilateral benefits, a fortified India-EU climate alliance has the potential to make a substantial contribution to achieving the **Sustainable Development Goals (SDGs)**, advancing **equitable decarbonization**, and shaping a **resilient, inclusive, and rules-based global order**. By continuing to act as bridge-builders and normative leaders, India and the EU can ensure that their partnership serves not only their mutual interests but also the broader cause of safeguarding the planet for future generations.

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