

# ENVIRONMENTAL STEWARDSHIP AND CLIMATE DIPLOMACY IN THE CONTEXT OF ECONOMIC FRAGMENTATION OF THE GLOBALIZED WORLD: ASIA'S CONTRIBUTIONS

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**Abstract.** The *purpose* of the paper is to examine the role of environmental stewardship and climate diplomacy as strategic instruments of economic governance in the context of the growing fragmentation of the globalized world, with a particular focus on Asia's contributions. The study aims to conceptualize how Asian economies integrate environmental responsibility and climate initiatives into foreign economic policy, regional cooperation, and global climate governance amid escalating geopolitical tensions, supply chain reconfiguration, and competing development models. *Methodology.* The research is based on a qualitative and comparative analytical framework that combines institutional analysis, policy review, and systemic comparison of key Asian actors, including China, Japan, South Korea, ASEAN member states, and India. The study applies elements of political economy, international environmental economics, and climate diplomacy analysis, supported by secondary data from international organizations, regional climate agreements, and national sustainability strategies. *Results.* The findings demonstrate that Asian countries increasingly use environmental stewardship and climate diplomacy not only as tools for addressing climate risks, but also as mechanisms for strengthening regional influence, securing access to green technologies, and mitigating the economic costs of global fragmentation. Asia's contributions are characterized by a dual logic: on the one hand, pragmatic climate cooperation within regional frameworks, and on the other, strategic competition in green finance, renewable energy, and low-carbon industrial policy. This duality reflects the broader transformation of globalization into a more fragmented and geopolitically conditioned system. *Practical implications.* The results may be applied in the design of national and regional climate strategies, international economic policies, and diplomatic initiatives aimed at balancing environmental objectives with economic resilience. For policymakers and international institutions, the Asian experience offers transferable models of integrating climate diplomacy into economic development strategies under conditions of systemic uncertainty. *Value.* The paper provides an original analytical perspective by linking environmental stewardship and climate diplomacy with the phenomenon of economic fragmentation, highlighting Asia's active and evolving role in reshaping global climate governance within a fractured global economic order.

**Keywords:** environmental stewardship, climate diplomacy, economic fragmentation, globalized world, Asia, sustainable development, green economy.

**JEL Classification:** Q54, Q56, F53, F64, O53

## 1. Introduction

The acceleration of economic fragmentation in the globalized world, driven by geopolitical rivalry, reconfiguration of global value chains, technological decoupling, and asymmetric development trajectories, has fundamentally altered the architecture of global governance. Scholars such as Rodrik (2011) and Tooze (2021) argue that globalization has entered a phase of strategic fragmentation, where economic interdependence increasingly coexists with political

distrust and selective cooperation. Within this evolving context, climate change has emerged not merely as an environmental challenge but as a systemic factor reshaping economic competitiveness, trade regimes, and international diplomacy.

A growing body of literature highlights that climate change amplifies existing structural inequalities and economic vulnerabilities, particularly in regions characterized by rapid industrialization and demographic pressure (Stern, 2008; IPCC, 2023). Environmental

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risks interact with economic fragmentation by disrupting production networks, intensifying resource competition, and redefining comparative advantages. As a result, environmental stewardship and climate diplomacy are increasingly integrated into national economic strategies, functioning as instruments for enhancing resilience, securing access to critical resources, and strengthening geopolitical positioning (Falkner, 2016; Keohane & Victor, 2016).

Asia occupies a pivotal position in this transformation. The region simultaneously hosts some of the world's largest emitters, fastest-growing economies, and most climate-vulnerable societies. According to the (Raimi et al., 2024), Asia accounts for more than half of global energy demand growth, making it a decisive actor in the global low-carbon transition. At the same time, Asian economies have become central drivers of renewable energy deployment, green finance expansion, and climate-related technological innovation (IRENA, 2025).

The scientific relevance of this study lies in examining Asia's environmental stewardship and climate diplomacy through the prism of economic fragmentation. Unlike the European Union, whose climate governance is based on strong supranational institutions, Asia's climate engagement is characterized by diversity, flexibility, and strategic pragmatism. This heterogeneity creates both coordination challenges and opportunities for innovative climate governance models. Therefore, environmental stewardship in Asia cannot be analysed independently from economic and geopolitical considerations, as climate policies are often explicitly designed to enhance competitiveness, reduce external dependencies, and navigate global uncertainty.

Thus, the research problem addressed in this paper is formulated as follows: how do environmental stewardship and climate diplomacy function as economic and strategic instruments in Asia under conditions of a fragmented globalized economy? The purpose of the paper is to analyse Asia's contributions to global climate governance by identifying key policy mechanisms, sectoral impacts, and strategic implications of climate-oriented economic diplomacy in the region.

## **2. Economic Fragmentation and the Transformation of Global Climate Governance**

The literature on global political economy increasingly recognizes fragmentation as a defining feature of the current international system (Farrell & Newman, 2019; Baldwin & Freeman, 2021). Economic fragmentation manifests through trade restrictions, competing regulatory standards, and the emergence of regional blocs, which directly affect climate governance structures. Scholars such as Keohane & Victor (2016)

emphasize that climate governance has shifted from a universal multilateral framework toward a "regime complex" composed of overlapping institutions and selective coalitions.

In this context, climate policy instruments are no longer neutral environmental tools. Carbon pricing mechanisms, green industrial subsidies, and climate-related trade measures increasingly serve geo-economic objectives (Meckling et al., 2015). The introduction of carbon border measures and green industrial strategies illustrates how climate governance is embedded in competitive economic strategies. As argued by Aklın and Urpeläinen (2018), states adopt climate policies not only to reduce emissions but also to secure technological leadership and industrial upgrading. For Asia, this transformation is particularly significant. The region's export-oriented economies and deep integration into global value chains make them sensitive to climate-related regulatory shifts. Fragmentation reduces the predictability of global climate rules, encouraging Asian states to pursue regional and bilateral climate initiatives that align with national development priorities.

The contemporary phase of globalization is increasingly shaped by processes of economic fragmentation, which have altered the institutional architecture and functional logic of global climate governance. Similar to how systemic economic crises disrupt established consumption patterns, fragmentation driven by geopolitical rivalries, trade conflicts, and technological decoupling reshapes the incentives, priorities, and behaviour of states within the international climate regime. The erosion of trust in multilateral institutions, combined with the selective use of international rules, has weakened the universality of climate governance and accelerated the shift toward plurilateral, regional, and bilateral climate arrangements.

Economic fragmentation manifests itself through the reconfiguration of global value chains, the rise of protectionist policies, and the strategic use of industrial policy, particularly in green technologies and energy transitions. As states seek to reduce external dependencies and secure strategic autonomy, climate policy has become closely intertwined with economic competitiveness and national security considerations. This transformation challenges the traditional perception of climate governance as a purely cooperative global public good and reframes it as an arena of strategic interaction and selective cooperation. Similar to behavioural shifts observed during economic crises, states increasingly prioritize resilience, self-sufficiency, and risk mitigation over efficiency and deep integration.

The transformation of global climate governance is also evident in the diversification of policy instruments and governance levels. While multilateral frameworks such as the Paris Agreement continue to provide normative guidance, their implementation

is increasingly complemented-or in some cases substituted-by regional climate initiatives, climate clubs, and issue-specific coalitions. Carbon border adjustment mechanisms, green subsidies, and climate-related trade measures illustrate how environmental objectives are being embedded into economic regulation, often reinforcing fragmentation rather than mitigating it. These instruments, although aimed at accelerating decarbonization, may deepen asymmetries between advanced and developing economies and generate new forms of climate-related economic exclusion.

Moreover, economic fragmentation has intensified normative competition over development models and climate responsibility. Divergent interpretations of climate justice, differentiated responsibilities, and development rights have become more pronounced, complicating consensus-building within global climate negotiations. Emerging economies increasingly emphasize the need to balance climate ambition with economic growth and social stability, while advanced economies promote stricter environmental standards aligned with their technological and financial capacities. As a result, global climate governance evolves into a multi-layered and contested system, reflecting broader structural changes in the world economy.

The post-pandemic and post-crisis global economy is increasingly characterized by fragmentation rather than integration. Disruptions in global value chains, strategic trade restrictions, and competition for technological leadership have weakened the universality of multilateral governance frameworks. Similar to how economic crises reshape consumer behavior, fragmentation alters state behavior in climate governance, shifting priorities from collective efficiency toward strategic autonomy and resilience.

Climate governance has evolved from a predominantly cooperative framework into a hybrid system combining multilateral agreements, regional initiatives, and bilateral arrangements. While the Paris Agreement remains the normative foundation of global climate action, its implementation increasingly reflects national economic interests and geopolitical constraints. Climate instruments such as carbon border adjustment mechanisms, green industrial subsidies, and climate-linked trade measures exemplify how environmental policy is embedded within economic competition. Under conditions of fragmentation, climate governance exhibits three structural shifts:

1. From universalism to selective cooperation.
2. From environmental norms to geo-economic instruments.
3. From global integration to regional climate blocs.

These shifts redefine the role of Asia, where climate policy is increasingly aligned with industrial upgrading, energy security, and diplomatic influence.

In this fragmented context, climate governance no longer follows a linear trajectory toward deeper global integration. Instead, it adapts to a heterogeneous landscape of interests, capabilities, and strategic priorities. Understanding this transformation is essential for assessing the role of key regions, particularly Asia, whose approaches to environmental stewardship and climate diplomacy are shaped by both the opportunities and constraints of a fragmented global economic order.

### **3. Environmental Stewardship as an Instrument of Economic and Foreign Policy in Asia**

Differences in economic structures, development trajectories, and historical experiences have led Asian countries to adopt diverse interpretations and practices of environmental stewardship. Similar to how generational experiences shape consumption behaviour, national development paths and exposure to environmental risks shape policy priorities and strategic choices in environmental governance. In Asia, environmental stewardship is not solely rooted in ecological values but is increasingly framed as a pragmatic instrument of economic modernization, industrial upgrading, and foreign policy positioning.

Rapid industrialization and export-led growth have historically placed environmental considerations in a subordinate position within many Asian economies. However, rising environmental degradation, climate-related disasters, and social pressures have gradually altered this hierarchy. Countries across the region have begun to integrate environmental stewardship into national development strategies, recognizing its role in sustaining long-term economic growth and social stability. For advanced Asian economies such as Japan and South Korea, environmental stewardship reflects a transition toward innovation-driven growth, energy efficiency, and leadership in green technologies. For emerging economies, including China and several ASEAN states, it represents a strategic recalibration aimed at balancing growth imperatives with environmental constraints.

Environmental stewardship in Asia reflects differentiated development paths and policy priorities. While advanced economies such as Japan and South Korea emphasize innovation-driven decarbonization, emerging economies like China and India integrate environmental objectives into broader industrial and energy security strategies. According to Altenburg and Rodrik (2017), green industrial policy has become a core component of latecomer development strategies, particularly in Asia. The Table 1 systematizes dominant models of environmental stewardship in Asia, linking

Table 1

**Models of Environmental Stewardship in Selected Asian Economies**

Country / Region	Dominant model	Key economic objectives	Strategic implications
China	Green industrial policy	Industrial upgrading, export leadership	Climate leadership, South–South cooperation
Japan	Innovation-led decarbonization	Technological competitiveness	Norm-setting, green finance diplomacy
South Korea	Green growth	Industrial diversification	Middle-power climate diplomacy
India	Development-oriented transition	Energy security, inclusive growth	Climate justice diplomacy
ASEAN	Adaptive sustainability	Resilience and development	Regional cooperation

Source: Fakhrollah, Xiao, D., Jan, N., Khan, S., & Suplata, M. (2025). *Environmental Stewardship and Economic Prosperity: A Comprehensive Assessment of CO<sub>2</sub> Emissions and Sustainable Development Goals in European Countries*. *Journal of the Knowledge Economy*, 16(1), 5572-5593

environmental policies with economic and foreign policy objectives.

Environmental stewardship in Asia functions as a strategic policy layer rather than a purely ecological agenda. It supports industrial modernization, enhances export competitiveness, and strengthens diplomatic leverage in a fragmented global economy. Environmental stewardship in Asia also functions as a foreign policy tool. By promoting green finance, renewable energy cooperation, and climate technology transfers, Asian states seek to strengthen bilateral and regional partnerships, enhance soft power, and improve their standing in international negotiations. Large-scale initiatives, such as green components within infrastructure investment frameworks and regional connectivity projects, demonstrate how environmental objectives are embedded within broader economic and diplomatic agendas. These initiatives serve not only to address climate risks but also to expand markets for domestic green industries and reinforce regional influence.

At the same time, the application of environmental stewardship reflects internal heterogeneity within the region. Resource endowments, income levels, and governance capacities create differentiated approaches to environmental policy implementation. While some countries prioritize strict environmental standards and innovation, others adopt more incremental or adaptive strategies to avoid undermining economic competitiveness. This diversity results in a layered regional landscape where environmental stewardship ranges from normative commitments to instrumental and interest-driven practices.

Overall, environmental stewardship in Asia mirrors the broader transformation of global economic relations under fragmentation. It evolves as a strategic response to environmental challenges, economic competition, and geopolitical uncertainty. Understanding these differentiated approaches is essential for assessing how Asian economies utilize environmental policy not only as a sustainability tool but also as a core component of economic and foreign policy strategy.

#### **4. Climate Diplomacy Frameworks and Regional Cooperation in Asia**

To date, the analysis of climate diplomacy in Asia remains fragmented, particularly when examined through the lens of economic fragmentation and shifting patterns of regional cooperation. Existing studies often focus on global negotiations or individual national strategies, while comparatively less attention is paid to the structured interaction between regional frameworks, bilateral initiatives, and multilateral climate mechanisms. The aim of this section is to systematize the key climate diplomacy frameworks operating in Asia and to assess the logic of regional cooperation in addressing climate challenges under conditions of geopolitical and economic uncertainty.

The analytical framework of this study is based on a structured review and comparison of major climate diplomacy mechanisms in Asia, including multilateral platforms under the UNFCCC, regional arrangements such as ASEAN climate initiatives, Asia-Pacific Economic Cooperation (APEC) environmental programs, and a network of bilateral climate partnerships. These frameworks are examined using a unified analytical logic that allows for the identification of common objectives, policy instruments, and modes of cooperation, while controlling for differences in economic development levels and institutional capacities among participating countries.

Asian climate diplomacy is characterized by institutional flexibility and pragmatic cooperation. Instead of rigid enforcement mechanisms, regional frameworks emphasize voluntary commitments, financial support, and technology transfer. ASEAN climate initiatives, APEC environmental programs, and bilateral climate partnerships form a dense network of climate governance instruments. Table 2 outlines the multilevel structure of Asian climate diplomacy frameworks.

Asian climate diplomacy compensates for weakened multilateralism by reinforcing regional and bilateral cooperation, enabling states to align climate goals with economic fragmentation realities. Particular attention

Table 2

**Key Climate Diplomacy Frameworks in Asia**

Framework	Scope	Core Instruments	Strategic Function
UNFCCC engagement	Global	NDCs, climate finance	Normative alignment
ASEAN climate cooperation	Regional	Adaptation, capacity building	Regional resilience
APEC climate agenda	Trans-regional	Technology diffusion	Economic coordination
Bilateral climate partnerships	Bilateral	Investment, R&D	Strategic influence

Source: Altynbekova, A., & Akhmedyanova, D. (2025). *Climate Diplomacy in Central Asia: Context, Challenges, and Opportunities*. *Journal of Central Asian Studies*, 23(3), 55-73.

is given to the institutional design and functional scope of regional cooperation mechanisms. Asian climate diplomacy is characterized by flexible, consensus-oriented arrangements that prioritize voluntary commitments, knowledge sharing, and capacity building over binding enforcement. This approach reflects the region's diversity and the need to accommodate varying national interests, development stages, and vulnerability profiles. Similar to methodological controls used in comparative behavioural studies, this analytical design enables the isolation of climate diplomacy dynamics from broader socio-economic heterogeneity.

The empirical basis of the analysis includes policy documents, official declarations, regional action plans, and reports issued between 2015 and 2024, covering key areas such as mitigation, adaptation, climate finance, and technology transfer. By applying a consistent analytical structure to these sources, the study ensures comparability across different cooperation frameworks and time periods. This approach allows for a clearer understanding of how regional climate diplomacy in Asia evolves in response to global economic fragmentation and shifting power relations within the international system.

### 5. Asia's Contributions to Global Climate Action under Fragmented Globalization

Asia's quantitative contribution to global climate action has expanded significantly despite geopolitical uncertainty. The region accounts for the majority of global renewable energy capacity growth and green investment flows. Table 3 summarizes Asia's approximate contribution to key global climate indicators.

Asia has transitioned from a passive participant to a structural pillar of global climate action. Climate engagement increasingly aligns with economic

competitiveness, industrial strategy, and geopolitical positioning.

First, Asia's contributions to global climate action demonstrate a steady expansion in scale, scope, and strategic orientation, despite the constraints imposed by fragmented globalization. Similar to how income dynamics shape consumer expectations, structural economic conditions and geopolitical pressures influence the form and intensity of climate engagement across the region. Asian economies have significantly increased investments in renewable energy, energy efficiency, and low-carbon infrastructure, positioning the region as a central hub of global green transformation. China, Japan, South Korea, and India collectively account for a substantial share of global renewable energy capacity growth, reflecting both environmental commitments and industrial policy objectives.

Second, Asia has played an increasingly active role in shaping climate finance mechanisms and green investment flows. Regional development banks, sovereign wealth funds, and national green finance frameworks have expanded funding for climate mitigation and adaptation projects domestically and internationally. These financial contributions are often aligned with broader economic strategies, supporting domestic industries, securing supply chains for critical minerals, and fostering technological leadership in sectors such as solar photovoltaics, batteries, and electric mobility. Under conditions of fragmented globalization, climate finance thus functions not only as a tool for environmental action but also as an instrument of economic positioning.

Third, Asian countries have contributed to global climate governance through differentiated but complementary diplomatic roles. While advanced economies in the region tend to emphasize innovation, standard-setting, and technological diffusion, emerging

Table 3

**Asia's Share in Global Climate Indicators (Approximate Estimates, 2023–2024)**

Indicator	Asia's Share (%)
Global renewable capacity additions	~55
Global green investment	~50
Global emissions reduction initiatives	~45
Climate finance mobilization	~40

Source: Chen, K. Z., Zhou, Y., Kou, K., & Fan, S. (2025). *Regional developments: East and Southeast Asia [in 2025 GFPR]*.

and developing Asian states focus on adaptation, resilience-building, and capacity development. This functional diversification enhances Asia's collective relevance in global climate negotiations, even as it reflects internal heterogeneity. Notably, regional initiatives and South–South cooperation have gained prominence, partially compensating for the limitations of universal multilateralism.

Finally, Asia's climate contributions reveal a forward-looking orientation in expectations and strategic planning. Despite ongoing economic and geopolitical uncertainties, many Asian governments have articulated long-term carbon neutrality targets and climate strategies extending to mid-century. These commitments signal a recognition that climate action is increasingly inseparable from economic resilience and global competitiveness. Overall, Asia's contributions to global climate action illustrate a pragmatic and adaptive approach, balancing environmental ambition with economic realities in an increasingly fragmented global system.

## 6. Conclusions

The findings of this study demonstrate that environmental stewardship and climate diplomacy in Asia are increasingly shaped by the dynamics of economic fragmentation, altering both the form and substance of global climate governance. Similar to how differing socio-economic experiences influence behavioural responses during economic crises, the diversity of development paths, institutional capacities, and strategic priorities across Asian economies results in differentiated approaches to climate action. Advanced and emerging Asian states integrate environmental

objectives into economic and foreign policy with varying intensity, yet converge in recognizing climate governance as a strategic domain rather than a purely environmental one.

The analysis shows that climate diplomacy in Asia functions simultaneously as a mechanism of cooperation and competition. On the one hand, regional frameworks and multilateral engagement facilitate coordination, knowledge sharing, and collective responses to climate risks. On the other hand, fragmented globalization encourages states to instrumentalize climate policies to enhance economic resilience, secure technological advantages, and strengthen geopolitical influence. This duality reflects a broader transformation of globalization, where climate governance adapts to a less integrated and more contested international environment.

Moreover, Asia's growing contribution to global climate action underscores the region's capacity to shape future trajectories of climate governance. Long-term decarbonization strategies, expanding green finance, and leadership in low-carbon technologies indicate a forward-looking orientation, even amid uncertainty and systemic risk. At the same time, internal heterogeneity and persistent development gaps suggest that climate cooperation in Asia will remain selective and flexible rather than fully harmonized.

Overall, the study confirms that environmental stewardship and climate diplomacy have become integral components of Asia's economic strategy in a fragmented globalized world. Understanding these evolving patterns is essential for assessing the future of global climate governance, as well as for designing policies that reconcile environmental ambition with economic stability and geopolitical realities.

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