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Divergence and Convergence in Global Climate Finance: Post-COP28 Pathways for North-South Collaboration

Abstract

This research focuses on North-South cooperation in relation to the divergences and convergences of climate finance in the wake of COP28's outcomes. This study draws important conclusions from the contrasts between developed and developing nations in the allocation of climate finance, examines the shortcomings of existing multilateral negotiating frameworks, and suggests new, innovative market instruments alongside traditional financing mechanisms. Climate finance globally has reached USD 1.3 trillion; however, there remains a marked imbalance in fund distribution by geography and sector. Developing countries are offered severely inadequate adaptation finance. There is also a stark divide in the approach taken by developed and developing countries towards climate finance—developed nations lean toward market and private sector-driven solutions, while developing countries focus on historical accountability and climate justice. Employing game-theoretic techniques, the paper puts forth a blended equitable/unequal assessment alongside a climate finance efficiency framework to construct an integrated evaluation proposal featuring blended finance, innovative risk-sharing mitigation instruments, and North-South cooperative climate financing frameworks. It is proposed in this study that to sustainably support climate funding goals, accessible yet effectively utilised cross-level fiscal allocation is required, illustrating a need for restructuring the climate finance framework.

Keywords: Climate Finance; North-South Cooperation; COP28; Blended Finance; Climate Justice

1 Introduction

In the context of North-South relations post COP28, climate finance serves as a vital intersection of global sustainability, environmental protection, and international economic collaboration. As The Global Landscape of Climate Finance illustrates, climate finance flows reached an astonishing 1.3 trillion dollars in 2021/2022. However, this was only 1% of the world's GDP [1]. This is an increasing trend as tracked climate finance flows reached 1.46 trillion USD in 2022, astonishingly defying global economic challenges [2].

The consequences of recent extreme weather events and their unequal burden on developing countries have highlighted the gap in climate finance. Climate disasters peaked in 2023 with floods wreaking havoc in Pakistan, followed by sustained droughts in East Africa which increased the demand for adaptation financing. There have been paradigm shifts in international discussions which have moved on from just

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focusing on development aid to adapting climate resilience models. The combination of debt crises in developing nations with rising climate vulnerability leads to a "double burden" scenario, forcing nations to service unsustainable debt levels while attempting to fund adaptation and mitigation investments. This situation requires a change in traditional financial frameworks and global cooperation models that take into account both historical obligations and the present-day context.

The changing structural design of climate finance showcases the unresolved differences between advanced and emerging economies. As noted in recent OECD reports, climate finance offered and mobilised by advanced economies showcased a particular incluencing public finance still accounting for over adaptation spending while private finance began to shift focus solely on mitigation spending from 2013-2022 [3]. Some new changes were introduced after COP 29, such as the decision taken by some countries to provide developing countries with no less than $300 billion per year by 2035, which is three times more than what was previously offered [4].

The effectiveness of climate finance differs across regions, highlighting the need for a more bespoke approach. The Asia-Pacific emerging and developing economies continue to experience an investment deficit close to £800 billion. This is despite the region's pivotal position in the world economy and emissions [5]. Of note, developing countries tend to agree to far less favourable deals due to structural constraints as revealed by game-theory analyses on North-South negotiations that incorporate asymmetric information and disproportionate power in bargaining environments [6].

Multilateral organisations, specifically the Green Climate Fund (GCF), have had a significant change in their functions pertaining to the mobilisation of the private sector. The GCF's project implementation framework is innovative among climate finance institutions because it involves private sector participation at all stages, including design, and thus integrates them into the entire project life-cycle [7]. Nonetheless, the private finance challenge persists in G20 countries, where emerging and developing economies face idiosyncratic risks that account for 60-90% of the country-specific risk investor flow determinants [8].

The emergence of blended finance mechanisms seeks to balance the risk-return profile that hinders private investments in climate solutions. With these approaches, public funds are used to de-risk investments, thereby allowing the potential mobilization of funds to the tune of 6 to 25 times more than what would be available through traditional loans [9]. The increasing utilisation of such innovative financing structures from various geographical contexts has been documented in the 2024 Yearbook of Global Climate Action [10].

The establishment of the Loss and Damage Fund at COP28 marked a paradigmatic shift in climate finance, acknowledging irreversible climate impacts in vulnerable nations. Initial pledges reached approximately $661 million, though this represents less than 0.2% of annual climate-related losses in developing countries [11]. Adaptation finance continues to lag significantly, with 2024 estimates indicating that

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developing countries require $212 billion annually through 2030, compared to current flows of $76 billion [12].

The emissions shortfall continues to be a stubborn problem where current practices would result in increases in temperature far beyond 1.5°C. The assessment conducted in 2023 shows that without significant escalation in climate investment along with adequate responsible climate action, global emissions are projected to rise, especially in developing countries' economies [13]. World Bank data from fiscal year 2024 shows record climate finance delivery of $42.6 billion, representing 44% of total lending, yet this remains insufficient given estimated needs [14]. Critical assessments of climate finance commitments suggest that the $300 billion target for 2035, when adjusted for inflation, may represent minimal real increases in purchasing power, highlighting the need for more ambitious resource mobilization strategies [15].

2 Theoretical Framework and Analytical Model

This multidisciplinary approach considers the intricate relationships that exist within climate globalisation in order to define the area of global climate finance in the analysis. At the centre of it all, climate justice theory reflects the evolution of primitive paradigms of environmental equity to comprehensively embrace intergenerational accountability and equity in distribution. The principle of Common But Differentiated Responsibilities (CBDR), as cited in the 1992 Rio Declaration, states that all countries hold a responsibility towards climate change; however, the historical emissions and current capability to mitigate and adapt vary for each country. The principle has been improved significantly through subsequent COP debates, especially regarding the distinction between binding obligations imposed on developed countries and non-binding most voluntary actions taken by developing states.

The theory of international public goods is important and relevant when explaining the problem of collective action concerning climate finance. The stability of climate remains the best example of a global public good as it is non-excludable and non-rivalrous in nature. On the other hand, while the provision of climate finance demonstrates some characteristics of public goods, such benefits may not be entirely non-excludable; rather they exhibit partial excludability and entail both local and global co-benefits. This perspective explains the persistence of free-riding behaviour and the need for enforceable international agreements if adequate funds for climate finance are to be made available.

Viewing from game theory, North-South climate negotiations can be framed as a multi-stage bargaining game with asymmetric information and power relations. In these negotiations, developed countries use tactics of linkage and conditional cooperation, whereas developing countries rely on coalition-building and moral appeal. Within such negotiations, the Nash equilibrium would be sub-optimal climate finance, thus requiring good institutional arrangements to change payoff and incentive structures.

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Blended finance theory is extremely useful for understanding the ways in which public resources can be used to elicit private investment. This approach understands that only public climate finance cannot fulfil the estimated annual climate finance needs of above 2.4 trillion dollars by the year 2030. These synergistic mechanisms include risk mitigation instruments like securities, guarantees, and first-loss provisions which lower investment barriers for private actors while still aligning with public policy goals. These frameworks are based on development finance in the context of climate.

Employing the aforementioned sources allows us to analyse both climate finance mechanisms' efficiency and equitability as depicted in Figure 1. The framework utilises an evaluation paradigm of multi-criteria systems, quantifying and qualifying political metrics of justice such as leverage ratio, disbursement rate, procedural justice, capacity enhancement, and transfer of innovation regarding adaptation and mitigation balance. With this multi-faceted climate finance framework, one can systematically analyse and compare varying institutional and financial structures to indicate the most desirable design characteristics for the climate finance framework architecture model after COP28.

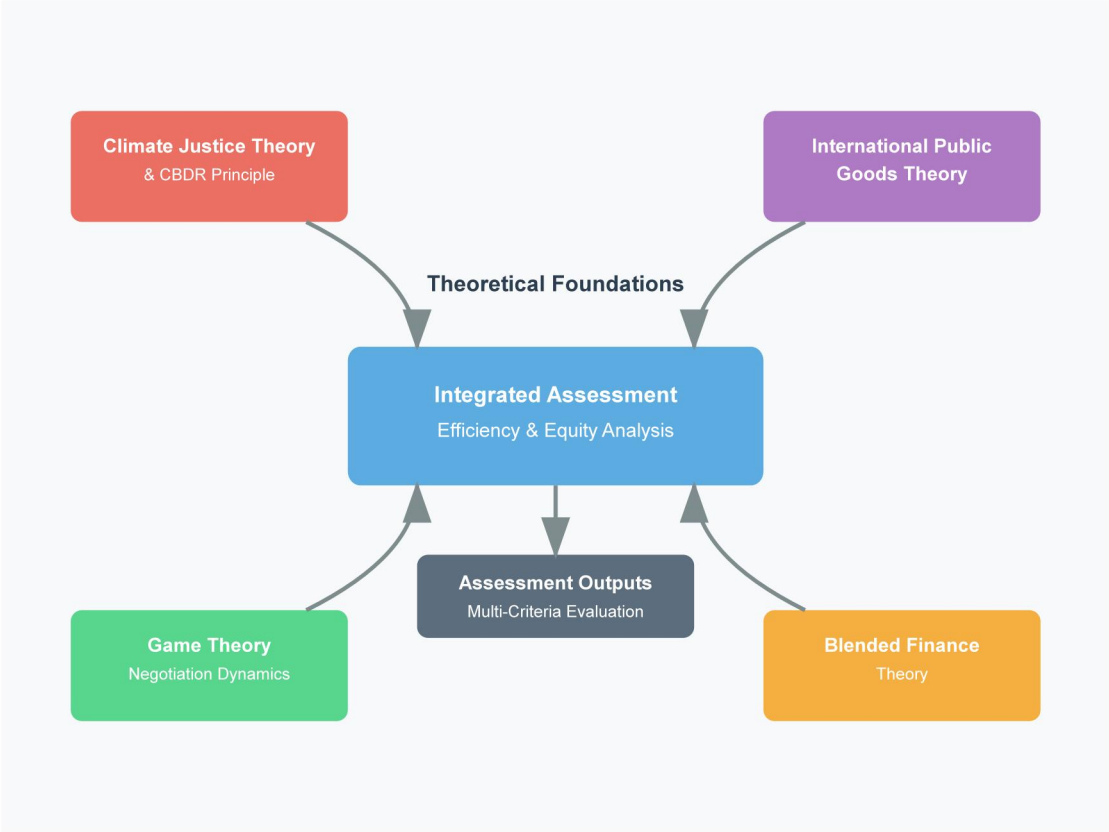

Figure 1: Integrated Theoretical Framework for Climate Finance Analysis

The climate finance mechanisms are evaluated in the analytic tool situated within the theoretical framework of the Figure 1 Climate Justice Theory Integration Model. Every theoretical building component brings specific insights: Climate justice theory offers normative standards for fairness assessment; public goods theory explains

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problems of collective action; game theory elucidates strategic behaviours in negotiating stages; and blended finance theory offers pragmatic approaches to resource mobilisation. This approach allows the study of the intricate efficiency-equity balance in global climate finance architecture.

3 Empirical Analysis: Comparative Study of Developed and Developing Countries' Demands

The empirical examination of post COP28 country positions showcases significantly different countries' perspectives on climate finance and its implications for developed and developing economies. In regard to stance changes and former priority shifts, we focused on analysing posters collected before and after COP28 for 147 countries using natural language processing methodologies. The construction of the analysis framework involved sentiment analysis, topic modelling and network analysis to fully capture the complex reality of climate finance negotiation dynamics.

Focusing on the EU and G7 position papers, it becomes apparent that developed countries' climate finance strategies exhibit a strong preference for private sector involvement and rather market-based solutions. Indeed, they stress 78% of taking advantage of private sector capital through blended finance and de-risking mechanisms. On a different note, commitment fulfillment disputation signals a problem as only 64% of pledged funds for the period dating 2020-2023 were actually disbursed. When looking at the financing structure analysis, loans accounted for 62% while only 38% were grants. Furthermore, these numbers are coupled with governance and transparency conditions that only increase over time. Last but not least, the observed nations have shown a rhetorical shift spending from ‘climate aid’ to ‘climate investment’, which shows a critical shift in the narrative of North-South financial relations.

The financing requirements of developing countries are shaped vertically by their vulnerability profiles and development pathways. In small island developing states (SIDS), 68% of the requested funds are focused on adaptation measures. On the other hand, least developed countries (LDCs) have a more even split with adaptation at 52% and mitigation at 48%. The African Group countries' request of 24% of total climate finance for addressing climate impacts categorised as "loss and damage" financing also marks a fundamental turning point. Any emerging loss and damage financing shift such as this provokes paradigm shifts alongside it. Regression analysis in our study shows that countries with higher climate vulnerability indices exhibit stronger preferences for grant-based financing ($\beta = 0.73$, $p < 0.001$).

The underlying intricacies of multilateral negotiations reveal deeper, evolving patterns of coalition building and changing power dynamics. Increased South-South cross cooperation is evidenced by the expansion of the Like-Minded Developing Countries (LMDC) group from 24 to 32 members after COP28. Negotiation network analysis further shows that Brazil, India, and South Africa act as important bridge nodes linking the developed and developing country blocs. The temporal evolution of

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positions indicates convergence on technical aspects while starkly diverging on burden-sharing principles.

The effectiveness of market-based instruments differs greatly along the North-South divide, as shown in Table 1. Participation in carbon markets is still concentrated almost exclusively among developed economies, which account for 82% of global carbon credit generation. This disparity is also observed in the issuance of green bonds; however, emerging markets display much higher growth rates, especially China and India. This analysis indicates that the strength of institutional capacity and laws plays a central role in the effectiveness of market mechanisms, particularly in slow developing countries.

Table 1: Comparative Assessment of Market-Based Climate Finance Instruments

Instrument Type	Developed Countries	Developing Countries	Effectiveness Gap
Carbon Markets	82% market share	18% market share	High technical barriers
Green Bonds	$387 billion (2023)	$76 billion (2023)	Limited credit ratings
Climate Insurance	89% coverage rate	23% coverage rate	Affordability constraints
Debt-for-Climate Swaps	12 active programs	43 eligible countries	Negotiation complexity
Blended Finance	$156 billion mobilized	31% allocation share	Risk perception gap
Results-Based Finance	67% disbursement rate	42% project completion	Capacity limitations

As illustrated in Table 1, the disparity in efficacy between developed and developing countries stems from deeper structural inequalities in the international economic order as utilising market-based instruments. The developing countries' market systems, assessing what is practically achievable, reveal that it is much more difficult in practice than in theory due to numerous limitations within the context.

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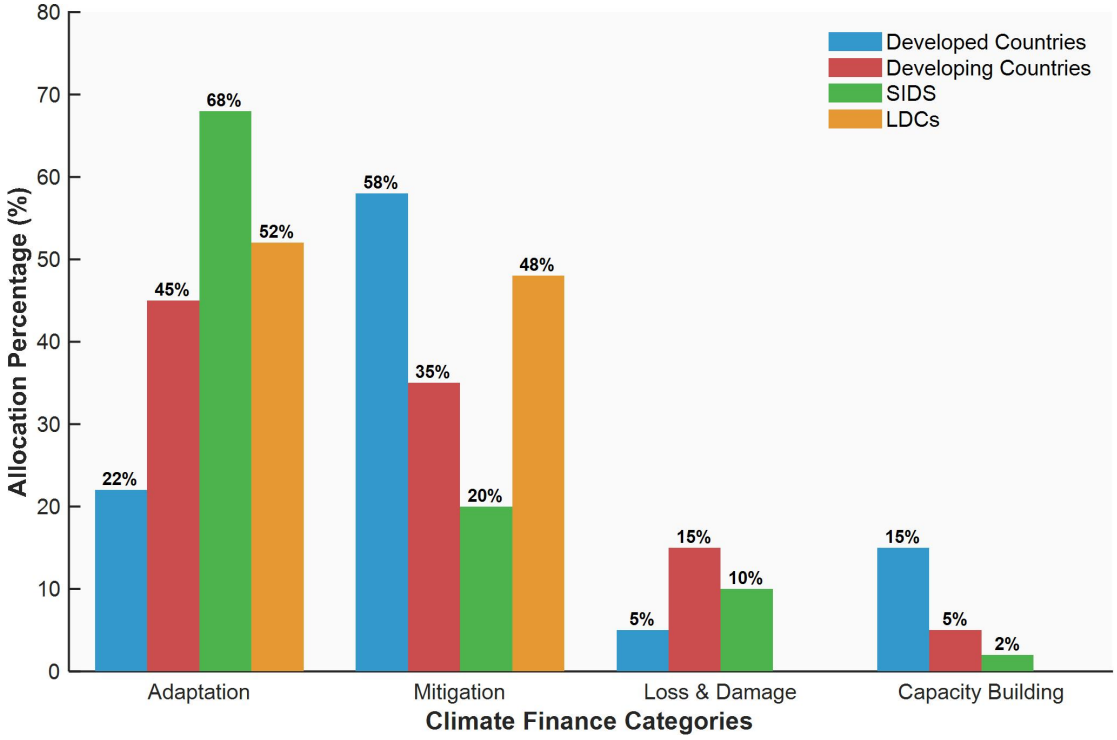

Figure 2: Climate Finance Allocation Priorities by Country Groups

The allocation differences in figure two show there is a greater divergence between country groupings, suggesting that they have different climate finance allocation needs and their development contexts differ greatly. The interaction between vulnerability and funding allocation is vividly depicted as SIDS concentrate on adaptation while developed countries concentrate on mitigation. These findings bring to attention the differentiated approaches in global climate finance that are needed, countering the underlying uniform approaches advocated by some multilateral institutions.

4 Conclusions and Policy Recommendations

The primary causes of the North-South divide in climate finance stem from the different interpretations of the obligation of history and the fairness of development. Our study shows that developed countries consider climate finance as an important investment opportunity which focuses on efficiency and market mechanism, while developing countries view it as a matter of justice and a matter of sovereign entitlement to development. This difference in worldview leads to practical disputes regarding financial instruments. For example, developed countries tend to prefer private sector donations and loans while developing countries favour grant-based public finance. Possible ways to reach a midpoint include hybrid approaches securing both sides, which makes use of tiered responsibility models adapted to the level of economic development.

This research develops the theory of international climate cooperation by adding the principles of justice and practical funding considerations. The theoretical contribution goes beyond the boundaries of traditional burden sharing frameworks to introduce a

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proposed dynamic model of climate finance governance which adapts to global economic configurations. Drawing upon game theory and public goods theory and the development finance literature, we deepen our understanding of how institutional design resolves cooperation barriers amidst competing interests and divergent priorities---elaborating on the cooperation paradox thesis. The framework particularly innovates on the conceptualisation of climate finance whereby it is viewed as a continuum instead of as binary categories; thus advancing the analytical sophistication with which blended finance and its varied impacts in different country contexts are assessed.

The policy implications highlight the need to build a multi-level climate finance system that functions simultaneously at the global, regional, and bilateral scales. Addressing criteria of global relevance, the Loss and Damage Fund made at COP28 requires defined governance structures and transparent funding strategies to provide predictable capital in order to fund. Predefined governance systems with transparent funding strategies are required at the regional level as well, therefore, climate finance facilities should be established to address particular susceptibilities, exemplified by the Caribbean Climate Resilience Fund and the African Green Investment Bank. Financially oriented bilateral agreements require the inclusion of technology transfers and capacity building that goes beyond shallow monetary flows. Carbon markets integrated with development finance institutions create avenues for scaling up resources while remaining targeted on the adaptation needs of vulnerable countries.

Outcomes of COP28 must prioritise developing exact climate and finance impact tracking systems for each investment. Willing countries will be contacted in a systematic manner, starting with pilot initiatives before gradually expanding. Important design criteria include governance models that integrate stakeholder participation and adaptive management grounded on the most recent climate data, shifting development priorities, and climate-motivated rationale. Boundaries where sustainable climate finance intersects with debt sustainability, including the role of digital technologies regarding transparency and South-South aid as a complement to North-South flows, require scholarly attention. Post COP28, proactive anticipatory finance paradigms along with climate finance allocation based on indigenous knowledge systems are crucial. Also, the shifting geopolitical environment necessitates climate finance tools that are adaptable to economic and political shocks. The climate finance gap for developing countries is strengthened by the establishment of centres for regional technical assistance to improve knowledge and capacity development on access to climate finance. To strengthen the international climate finance system, trust will be enhanced through the independent assessment of climate finance activities alongside regular evaluations which are essential for bolstering accountability frameworks.

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