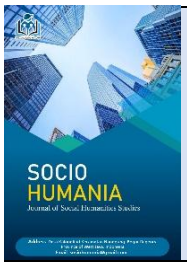

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Advancing Climate Justice in Fiscal Governance: Redesigning Accountability Frameworks in Global Climate Finance

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ABSTRACT

This study examines how climate justice principles can be integrated into fiscal governance frameworks to enhance accountability within global climate finance. As climate change intensifies economic vulnerabilities, particularly in developing countries, the allocation and oversight of climate finance have become critical determinants of equity and resilience. Current fiscal oversight mechanisms exhibit notable progress in transparency but remain insufficient in addressing fairness, distributive justice, and participation. Through a comparative institutional analysis of global financial institutions, national budget systems, and emerging technological tools, this study identifies persistent challenges—including fragmented accountability structures, lack of standardized reporting mechanisms, and political-economy dynamics that hinder equitable funding flows. The findings emphasize that climate finance often prioritizes procedural compliance over transformative outcomes, limiting its potential to reduce structural inequalities and build adaptive capacity. The study argues that accountability frameworks must evolve beyond conventional financial auditing, incorporating social and environmental metrics that reflect the moral imperatives of climate justice. By integrating participatory governance, digital innovations, and harmonized reporting standards, fiscal systems can foster more transparent, just, and impactful climate finance. This research contributes to the discourse on climate governance by proposing accountability reforms capable of linking financial decision-making with ethical considerations, thereby advancing global efforts toward a fair and resilient climate transition.

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INTRODUCTION

The urgent global imperative to address climate change necessitates a robust and equitable financial architecture, particularly in the context of international climate finance. This endeavor is intrinsically linked to the concept of climate justice, which demands that fiscal governance mechanisms not only mobilize unprecedented financial resources but also ensure their fair and effective distribution, especially to vulnerable nations and communities

(Ballesteros et al., 2010). However, current international climate finance frameworks often fall short, exacerbating existing inequalities and failing to sustainably cover climate spending in the Global South (Dafermos, 2025). This gap highlights a critical need to redesign accountability frameworks within global climate finance to align with principles of justice, transparency, and effectiveness (Reiter et al., 2021).

Climate change has evolved from an environmental challenge into a fundamental test of global fairness. Rising sea levels, droughts, and extreme weather events are no longer confined to one region or class; instead, they reshape national budgets, public-debt ratios, and social stability. As governments devote more resources to recovery and adaptation, questions about who pays and who benefits have become central to fiscal policy. Consequently, oversight institutions that once prioritized efficiency and compliance must now assess whether spending reduces vulnerability and promotes equity. In this context, fiscal accountability and climate justice are inseparable. This paper explores how accountability frameworks in global climate finance can be redesigned to actively advance climate justice, extending beyond mere financial oversight to encompass broader ethical and social considerations.

In recent years, the international community has mobilized enormous resources to combat climate change, with United Nations estimates indicating that annual global climate-finance flows now exceed one trillion dollars. Yet, the distribution of these funds remains deeply uneven: developing countries—those least responsible for greenhouse gas emissions—receive a disproportionately small share of the promised assistance. The core issue lies not merely in insufficient funding but in the structure of the global financial system itself. Oversight mechanisms, designed primarily for tracking efficiency, neglect fairness. As a result, many of the poorest and most climate-vulnerable societies struggle to access predictable, transparent funding for adaptation. Moreover, historical responsibilities for emissions are frequently overlooked in funding allocations, perpetuating injustices where resource-poor nations bear the brunt of climate impacts (Browne, 2021). This disparity underscores the urgent need for a more equitable allocation of climate finance, one that transcends traditional economic metrics to incorporate principles of climate justice prioritizing frontline communities and developing nations (Qi & Qian, 2023).

Institutions such as the International Monetary Fund, the World Bank, and regional development banks play a pivotal role in this architecture, as their lending and surveillance programs shape how national budgets integrate environmental goals. Initiatives like the IMF's Climate Macroeconomic Assessment Program, the World Bank's Green, Resilient, and Inclusive Development framework, and the Asian Development Bank's Climate Action Plan 2023–2030 demonstrate that climate concerns are gaining traction in fiscal planning. Nevertheless, oversight within these institutions remains dominated by economic logic, emphasizing efficiency and risk mitigation over justice or representation. This limitation raises a normative question about the legitimacy of fiscal governance amid escalating environmental and social stresses.

Similar tensions arise at the national level, where countries have experimented with climate-budget tagging, green bonds, and environmental-tax reforms. While these innovations link budgets to sustainability goals, they often overlook distributive impacts—such as effects on gender equality, regional balance, and income disparity. The COVID-19 pandemic laid bare these gaps: wealthier states launched "green recovery" packages, whereas developing economies grappled with debt ceilings and shrinking fiscal space. This contrast reveals that equitable climate finance is not solely an environmental issue but also one of fiscal

sovereignty and policy credibility. Furthermore, the principle of Common But Differentiated Responsibilities and Respective Capabilities—foundational to international climate agreements—emphasizes developed nations' obligation to provide financial assistance to developing countries, acknowledging their historical emissions and greater financial capacity (Chowdhury & Jomo, 2022; Swarnakar & Shukla, 2023).

Against this backdrop, the central purpose of this paper is to examine how principles of climate justice can be embedded in fiscal oversight systems. The analysis is guided by three key questions: First, how do existing oversight arrangements—both international and domestic—address fairness and participation in climate finance? Second, what institutional or political constraints hinder the adoption of justice-based metrics? Third, what reforms—legal, procedural, or technological—could transform climate finance from a compliance exercise into a mechanism for inclusive development?

These questions are both timely and practical. Article 2.1 of the Paris Agreement explicitly calls for aligning financial flows with low-emission, climate-resilient pathways, while the 2030 Agenda for Sustainable Development ties fiscal transparency to inclusive growth via SDG 13 and SDG 16. Achieving these goals demands trustworthy oversight institutions that blend technical precision with moral purpose. A transparent, participatory approach to climate finance would bolster public trust, attract private investment, and enhance the legitimacy of multilateral cooperation.

The paper unfolds in five parts. The next section reviews key literature on fiscal accountability and climate governance, tracing how equity and participation have entered public finance discourse. The Research Method section outlines the comparative institutional approach employed in this review. The Results and Discussion section examines current oversight mechanisms, identifies their weaknesses, and spotlights promising reforms. Finally, the conclusion offers recommendations for a global framework of justice-oriented fiscal accountability. The core argument is straightforward yet profound: embedding climate justice in fiscal oversight is not mere idealism but the essential foundation for credibility and stability in global finance.

RESEARCH METHOD

This study applies a comparative institutional method to explore how fiscal oversight systems integrate climate-justice principles. Rather than testing a single hypothesis, the research aims to identify patterns, contrasts, and emerging standards among international financial institutions (IFIs), multilateral climate funds, and selected national oversight systems. The comparative approach allows for understanding both structural constraints and local adaptations in the governance of climate finance. Because fiscal accountability and climate justice intersect across law, economics, and environmental policy, a single disciplinary lens would be insufficient. The study therefore draws on multiple data types—policy documents, evaluation reports, peer-reviewed scholarship, and institutional case studies—to develop a comprehensive picture of how oversight is evolving.

Scope of Sources

The review covers the period 2000–2024, which marks the consolidation of global climate finance after the Kyoto Protocol and the expansion of institutional oversight under the Paris Agreement. Core primary sources include annual and evaluation reports from the IMF, World Bank Group, Asian Development Bank (ADB), African Development Bank (AfDB), Green

Climate Fund (GCF), and the Organisation for Economic Co-operation and Development (OECD). Supplementary data were drawn from United Nations agencies such as the UN Development Programme (UNDP), the UN Framework Convention on Climate Change (UNFCCC), and the Department of Economic and Social Affairs (DESA).

Academic materials were identified through searches on JSTOR, Scopus, and Google Scholar, using keywords including climate justice, fiscal oversight, global finance, accountability, ESG governance, and transparency. Only peer-reviewed or institutionally verified publications were included. Reports without verifiable sources or explicit methodological notes were excluded to maintain reliability. Altogether, more than 90 documents were reviewed and coded according to thematic relevance.

Analytical Dimensions

To evaluate how fiscal oversight reflects principles of climate justice, the research applied three analytical dimensions that recur across governance and accountability theory: (1) Transparency—the degree to which financial information, project data, and audit findings are publicly accessible and verifiable; (2) Equity—the extent to which climate-related fiscal measures consider vulnerability, income inequality, gender, and geographic balance, and (3) Participation—the inclusion of developing countries, local authorities, and civil-society organizations in decision-making and review processes. Each source was examined for references to these dimensions and for evidence that they were institutionalized rather than treated as symbolic commitments. For example, a public disclosure portal that publishes project-level data counts as strong transparency, whereas restricted internal reporting counts as weak. A participatory consultation with voting rights scores higher on participation than one limited to observer status.

Data Organisation and Coding

The material was organized in three layers. First, institutional documents from global organizations were coded to map formal oversight mechanisms—such as the IMF's Independent Evaluation Office, the World Bank's Inspection Panel, and the GCF's Independent Evaluation Unit. Second, national examples from Bangladesh, Chile, and Kenya were analyzed to assess how domestic systems adapt global norms to local realities. These countries were selected because they represent different income levels and oversight capacities but share an explicit commitment to linking budgets with climate objectives. Third, cross-institutional standards like the Task Force on Climate-related Financial Disclosures (TCFD), the International Sustainability Standards Board (ISSB) guidelines, and the INTOSAI Working Group on Environmental Auditing were examined to identify convergence or divergence in reporting norms.

Each document was read line by line, with relevant passages coded under categories of transparency, equity, and participation. The codes were then clustered to identify recurring governance patterns, strengths, and gaps. This qualitative coding process follows the logic of grounded theory, allowing patterns to emerge from the data rather than imposing predefined assumptions. Analytical memos were prepared to summarise the comparative findings before synthesis in the results section.

Evaluation Criteria

The analysis focused on whether climate-finance oversight meets three practical standards:

1. Comprehensiveness: Does the system capture both financial and non-financial impacts of climate spending?
2. Accessibility: Are fiscal data and evaluation results available in formats usable by citizens, journalists, and researchers?
3. Responsiveness: Can findings from oversight bodies lead to policy adjustments or corrective action?

These criteria are adapted from public-sector evaluation frameworks recommended by the OECD (2021) and INTOSAI (2022). Applying them across multiple institutions helps assess how close global governance is to achieving justice-based accountability.

Limitations and Delimitations

Several constraints shape this research. Access to internal audit reports and confidential evaluations is limited, which restricts direct observation of decision-making. Variations in terminology—such as differences between "climate finance," "green finance," or "sustainable investment"—complicate direct comparison. Moreover, the concept of climate justice itself is interpreted differently across regions; what counts as fairness in one context may differ in another. The study therefore focuses on institutional intention and design rather than the precise measurement of outcomes. Despite these limitations, triangulating multiple sources provides a robust overview of the emerging oversight architecture. Using publicly available data ensures transparency and reproducibility, while comparative analysis allows for general observations across diverse institutional settings. Although qualitative in nature, this approach captures the nuances of how fiscal oversight evolves in response to moral and political pressures for justice.

Ethical Considerations. Because the study relies exclusively on public documents and secondary literature, it does not involve human subjects or confidential data. However, ethical research principles were applied in the citation of all sources and the interpretation of institutional materials. The aim is not to criticize specific organizations but to evaluate systems and highlight opportunities for improvement. Care was taken to represent each institution's position accurately and to avoid selective interpretation of data.

Summary of Methodological Rationale

In summary, the comparative institutional method enables this review to examine fiscal oversight as a living system of accountability that crosses national boundaries. By focusing on transparency, equity, and participation, the analysis reveals how climate justice can become measurable within financial governance. The method's strength lies in its ability to link abstract concepts—such as legitimacy and fairness—with practical indicators like audit publication, participatory review, and equitable funding allocation. The results of this multi-layered comparison are presented in the next section, where both global and national cases are analysed to assess progress and remaining gaps.

RESULT AND DISCUSSION

The evidence reviewed across international and national systems shows that fiscal oversight has become more transparent yet still falls short on fairness and participation. The following nine themes illustrate where progress has occurred and why deeper reform is still needed. Fragmented Oversight Architecture At the global level, climate-finance oversight remains dispersed. Funds such as the Green Climate Fund, Adaptation Fund, and numerous World

Bank and regional bank trust funds all use separate reporting templates and eligibility rules. This multiplicity complicates comparison and sometimes leads to duplicated figures.

Studies by the UN (2020) and OECD (2021) estimate that as much as one-quarter of recorded flows are double-counted or inconsistently coded. Borrowing countries face layers of paperwork, while donors struggle to track impact. Even within a single institution, accountability is uneven. The IMF's Independent Evaluation Office and the World Bank's Inspection Panel act as valuable checks but cannot enforce compliance. Their recommendations often depend on political will. The GCF's Independent Evaluation Unit promotes a learning-oriented model that emphasizes performance, yet smaller or climate-vulnerable states still find participation difficult. Transparency has grown; inclusivity has not kept pace.

Debt Conditionalities and Fiscal Space Debt rules strongly influence what governments can fund. Many IMF or World Bank programs continue to prioritize strict fiscal consolidation, which limits spending on adaptation and resilience. The IMF Climate Macroeconomic Assessment Program now integrates climate risk into debt sustainability reviews, but practice differs widely. When fiscal ceilings stay rigid, environmental and social programs compete for scarce funds. Experiments such as debt-for-climate swaps—seen in Seychelles, Belize, and Barbados—convert external debt into national climate-trust funds. Eckstein et al. (2021) note that these arrangements work only when communities share oversight and benefits. Otherwise, they may reproduce creditor dominance. Bradlow (2020) adds that debt restructuring should come with domestic disclosure rules and measurable outcomes so that relief genuinely strengthens local accountability.

Representation and Participation Decision-making power inside global lenders still reflects economic hierarchy. Wealthy states hold most voting shares, while those most exposed to climate risks remain underrepresented. Civil-society organizations usually enter discussions late, after major terms are settled. The GCF observer network has widened access but not influence. Some positive movement exists. The Asian Development Bank now requires at least sixty days of public comment on new projects, and the African Development Bank includes local-government and women's-group delegates in its Civil Society Committee. Such openings may seem minor, yet they demonstrate that broader participation is possible when procedures are intentionally adjusted.

Justice-Based Metrics and Budget Tagging Most fiscal reports still focus on totals—budgets and disbursements—rather than who benefits. Only a handful of systems disaggregate by gender, income, or region. UNDP's Climate Budget Tagging initiative, now active in more than forty countries, marks climate-relevant expenditures within national budgets. While visibility improves, many tagging systems stop short of assessing equity results. Bangladesh's Climate Fiscal Framework goes further by aligning sector budgets with adaptation goals and publishing distributional outcomes. Chile's Environmental Fiscal Reform links carbon-tax revenues with environmental-impact data, making fiscal justice measurable. The OECD (2021) and INTOSAI (2022) both urge development of a common template that connects fiscal data with social indicators. Establishing such standards would shift oversight from compliance to fairness evaluation.

Political-Economy Dynamics

Financial flows rarely follow purely technical logic. Donor nations often fund allies or strategic partners, while some recipient governments rebrand ordinary infrastructure as

"climate" projects to gain concessional loans. Such political maneuvering can undermine the efficacy and equitable distribution of climate finance, diverting resources from the most vulnerable populations to projects with less direct climate impact or even those primarily serving geopolitical interests (Qi & Qian, 2023). This political economy perspective highlights the complex interplay of power, responsibility, and accountability in shaping climate finance outcomes, often sidelining strong fiduciary management and anti-corruption measures that are crucial for effective resource utilization (Ballesteros et al., 2010). This perspective suggests that informal institutions, such as political clientelism and elite capture, significantly influence the allocation and effectiveness of climate finance, often at the expense of equity and transparency (Browne, 2021). Furthermore, the quality of government financial reports and public participation significantly affect transparency and accountability in managing these resources (Sumual et al., 2021).

Research indicates that public participation, while not always directly affecting government performance, significantly impacts the transparency of financial management (Sumual et al., 2021). This suggests that increasing stakeholder involvement in climate finance governance can improve accountability mechanisms by exposing opaque practices and demanding better resource allocation (Islam, 2025). Moreover, studies emphasize the critical role of robust and transparent accounting rules in mitigating the fragmentation and complexity inherent in the climate finance system (Pickering et al., 2017). Moreover, the integration of an EU classification variable in donor compliance studies offers fresh insights into how regional affiliations can influence climate finance effectiveness (Nor, 2025). In this context, the presence of robust institutional frameworks and political stability can significantly mitigate the diversion of climate funds, thereby enhancing their impact and ensuring their equitable distribution (Trinh & Tran, 2024).

Conversely, weak governance, political instability, and corruption exacerbate the challenges in climate finance, leading to misallocation of funds and failure to meet climate objectives (Nor, 2025; Trinh & Tran, 2024). Corruption and poor financial management divert resources from vulnerable communities, exacerbating the problem of unequal allocation of climate adaptation finance, particularly in the Global South (Anjanappa et al., 2024). These systemic failures necessitate a re-evaluation of accountability frameworks, moving beyond mere financial audits to encompass mechanisms that assess equitable distribution and climate impact (Adisa et al., 2024; Etienne et al., 2025). This requires a holistic approach that considers both the technical aspects of financial oversight and the socio-political dimensions of climate justice, emphasizing that effective public financial management, including robust accountability and transparency, is crucial for integrating climate finance into national development plans (Funder, 2016; Nkoa et al., 2025).

This integration, in turn, requires significant attention to whether and how governments are prioritizing adaptation and resilience in their own operations, ensuring that national budgetary processes reflect climate imperatives (Price, 2020). This approach necessitates a deeper understanding of how green finance mechanisms intersect with national fiscal policies, particularly in their capacity to influence macroeconomic stability and sustainable development initiatives (Li & Lin, 2024). Such integration mandates the development of sophisticated public financial management systems capable of tracking climate-related expenditures and revenues with precision (Price, 2020). Additionally, the effectiveness of these systems is often contingent on addressing underlying issues such as data inadequacy and the lack of standardized reporting mechanisms (Funder, 2016). This underscores the urgent need for harmonized global standards for climate finance reporting and enhanced

capacity building in developing nations to implement such frameworks effectively (Adisa et al., 2024).

This necessity is further underscored by findings that highlight a lack of internationally agreed methods for climate finance accounting, which results in widely divergent reporting practices and challenges in monitoring financial flows (Bozhenko et al., 2023). This divergence makes it exceedingly difficult to accurately assess the overall scale and impact of global climate finance, thereby hindering effective accountability (Qi & Qian, 2023). Furthermore, the existing gaps between financial needs and actual delivery, coupled with insufficient transparency in climate budgeting, exacerbate these accountability challenges, making it difficult to ascertain whether funds reach their intended beneficiaries and achieve their climate objectives (Ampaire et al., 2024). These shortcomings necessitate the development of robust accountability frameworks that incorporate not only financial oversight but also socio-environmental impact assessments to ensure climate justice (Torre et al., 2023). Such frameworks must actively address the complexities of funding mechanisms and enhance transparency, which are often hindered by incomplete data and inadequate reporting (Digitemie & Ekemezie, 2024).

The integration of climate finance into government budget cycles remains unclear, necessitating further research and assessment to bridge existing gaps and ensure effective resource allocation for climate action (Ampaire et al., 2024). This involves a comprehensive understanding of how climate budgeting can strengthen adaptive capacity and mitigate climate-related risks, particularly in vulnerable regions (Ampaire et al., 2024). This underscores the imperative for local governments to develop tailored fiscal policies and robust financial management systems for individual climate projects, ensuring accountable resource deployment (Wright, 2024). Moreover, a critical element for advancing climate justice is the establishment of comprehensive, country-specific climate finance tracking systems, as less than 25% of developing countries have adequately reported their adaptation finance needs (Alayza & Caldwell, 2021). This dearth of transparent and comprehensive reporting not only impedes effective resource mobilization but also undermines accountability mechanisms crucial for equitable climate action.

Additionally, the absence of universally agreed-upon standards for defining and reporting climate finance further complicates efforts to ensure transparency and accountability in global financial flows (Pickering et al., 2017; Qi & Qian, 2023). This ambiguity often leads to difficulties in tracking the efficacy of climate-related investments and verifying their alignment with climate justice principles. This lack of standardization contributes to the persistent challenge of identifying persons with fiscal responsibility, particularly when external stakeholders like international funders are involved, making it difficult to pinpoint accountability for financial mismanagement or corruption in climate finance (Wright, 2024). This multifaceted challenge necessitates a re-evaluation of existing institutional designs and budget processes to incorporate a broader range of actors, including civil society and independent fiscal bodies, to enhance oversight and promote long-term policy objectives (Renzio & Wehner, 2025). Therefore, redefining accountability frameworks within global climate finance must prioritize the integration of digital platforms and innovative technologies to enhance transparency and citizen engagement (Islam, 2025).

These platforms can facilitate real-time monitoring of climate finance flows and project implementation, thereby strengthening public oversight and fostering greater trust in climate governance. Furthermore, the implementation of intelligent technologies, akin to those used in public expenditure and financial accountability assessments, can streamline the complex

tasks of tracking, communicating, and evaluating climate finance expenditures, thereby reducing the "human factor" and mitigating risks of process abuse (Wright, 2024). Moreover, a stable financial regulatory framework coupled with clear communication strategies is crucial to mitigate policy uncertainty in the nascent green finance sector, preventing reforms from generating undue ambiguity among market participants and financial institutions (Barbosa et al., 2024). Such frameworks must also address the fragmentation and lack of coordination evident in the current global climate finance landscape, where opacity in financial flows remains a significant impediment to effective accountability (Shirai, 2023).

Technology and Ethical Oversight

Digital tools are rapidly altering audit practice. Blockchain ledgers can trace every transaction, and machine-learning systems can flag anomalies. These technological advancements hold significant potential to enhance transparency and mitigate corruption risks in climate finance by providing immutable records and automated detection of irregularities (ECF Report, 2020; Wright, 2024). These advancements can significantly reduce the human element in financial oversight, thereby minimizing opportunities for misappropriation and enhancing the integrity of climate finance mechanisms (Lyeonov et al., 2023). However, the adoption of such technologies necessitates robust ethical guidelines and regulatory frameworks to ensure data privacy, prevent algorithmic bias, and maintain human oversight in critical decision-making processes. Furthermore, integrating green building certification can combat corruption and attract climate investments, thereby fostering carbon neutrality goals (Lyeonov et al., 2023).

This integration must also address potential vulnerabilities associated with greenwashing, ensuring that certified projects genuinely contribute to environmental sustainability (Li & Lin, 2024; Sasaki, 2025). Moreover, rigorous oversight and independent verification are essential to validate the environmental claims of green-certified projects, preventing deceptive practices that undermine the credibility of climate finance (Ballesteros et al., 2010). Such oversight mechanisms are particularly vital in the context of carbon offset markets, where weak governance and limited enforcement capacity can facilitate the illegal appropriation of land and distortions in carbon accounting, eroding the integrity of climate action (Sasaki, 2025). Therefore, establishing robust and transparent accountability frameworks that leverage advanced technological solutions while upholding stringent ethical standards is paramount for advancing climate justice in fiscal governance (Wang et al., 2025; Wright, 2024). This approach should focus on reconciling the need for rapid climate action with robust integrity measures, preventing "green sacrifice zones" and fostering equitable outcomes (Zinnbauer, 2025). This requires a comprehensive framework that integrates advanced digital technologies with strong ethical oversight, ensuring that climate finance genuinely serves its intended purpose of fostering sustainable development and climate resilience for all (Lazor et al., 2024; Udeh et al., 2024).

Central to this endeavor is the continued exploration and implementation of technologies like blockchain, which offer immutable, transparent, and secure transaction records that can significantly enhance trust among stakeholders in green finance initiatives (Biswas, 2024; Udeh et al., 2024). Distributed ledger technologies can increase transparency in green financing and investment, making it easier to verify green bond utilization and track carbon credits in sustainability projects (Kassetty et al., 2024; Ozili, 2022). This enhanced transparency can attract more investors to green finance by providing greater assurance that funds are directed towards genuinely environmentally beneficial projects (Udeh et al., 2024).

This increased accountability can help bridge the credibility gap often associated with green investments, encouraging broader participation from both public and private sectors (Ozili, 2022; Tee & Rubbaniy, 2025; Udeh et al., 2024). Furthermore, blockchain's capacity to automate disclosure and reporting can significantly reduce information asymmetry, thereby combating greenwashing and strengthening market trust, especially in thematic bonds (Li et al., 2025; Tee & Rubbaniy, 2025).

The application of blockchain technology extends to overcoming challenges such as imperfect information sharing and the absence of effective regulatory mechanisms within green finance, as demonstrated in various contexts (Udeh et al., 2024). This decentralized and unchangeable nature of blockchain offers a promising solution for ensuring transparency and accountability in green finance, particularly in its allocation and utilization for sustainable agricultural methods (Patwardhan et al., 2024). This technological innovation provides an opportunity to enhance traceability, foster financial inclusion through tokenized green bonds, and integrate performance-linked returns to ensure accountability for measurable sustainability outcomes (Tee & Rubbaniy, 2025). The immutable and transparent nature of blockchain technology, stemming from its use of cryptographic hash values to link blocks of data, offers a robust framework for improving the integrity and reliability of green finance transactions (Li et al., 2025).

This inherent security feature, rooted in cryptographic principles, ensures that once a transaction is recorded, it cannot be altered, thereby preventing fraudulent activities and enhancing trust in climate finance flows (Jasim & Hadi, 2025; Li et al., 2025). This makes blockchain particularly suitable for tracking the entire lifecycle of green projects, from funding to impact assessment, thereby strengthening the accountability framework in global climate finance. This transparency, traceability, and accountability, as highlighted by Kalaiarasi and Kirubahari, are crucial for promoting sustainable practices within climate finance (Cai et al., 2024). Furthermore, the decentralized nature of blockchain technology, where each node in the network stores all interactions, makes it a resilient system against single points of failure, bolstering trust in financial transactions (Jasim & Hadi, 2025). This distributed consensus protocol regulates the addition of new blocks to the chain, further solidifying its integrity and making it a viable solution for optimizing blockchain network performance in various applications, including municipal services and green finance initiatives (Jasim & Hadi, 2025).

By eliminating intermediaries and providing a transparent, immutable record of transactions, blockchain significantly reduces administrative costs and enhances efficiency in sustainable finance initiatives (Kouam, 2024). Moreover, the integration of distributed ledger technology, which underpins blockchain, enables transparent and tamper-proof tracking of entire supply chains, crucial for verifying the sustainability claims of green projects (Tee & Rubbaniy, 2025). This enhanced traceability provides stakeholders with verifiable data, which is essential for assessing genuine environmental impact and preventing misleading "green" claims (Singh et al., 2024). This technological capability allows for the robust authentication of environmental certifications and the precise monitoring of green finance allocation, thereby fortifying accountability frameworks against potential greenwashing (Patwardhan et al., 2024). This makes blockchain an invaluable tool for validating the environmental integrity of projects and ensuring that green finance effectively contributes to climate justice objectives by preventing the misappropriation of funds or misrepresentation of sustainable practices (Zhao, 2022).

The implementation of blockchain, therefore, represents a paradigm shift towards a more verifiable and equitable allocation of climate finance, enhancing transparency in

resource deployment and impact assessment (Biswas, 2024; Udeh et al., 2024). This shift necessitates a re-evaluation of existing accountability frameworks, integrating blockchain's capabilities to foster a truly transparent and accountable global climate finance ecosystem (Patwardhan et al., 2024). This comprehensive integration not only bolsters trust among diverse stakeholders but also empowers regulatory bodies with enhanced oversight tools to ensure compliance and ethical resource utilization. The cryptographic underpinnings of blockchain, particularly the use of hash functions to secure data, provide an immutable audit trail that can significantly deter illicit financial flows and enhance the security of green finance transactions (Jasim & Hadi, 2025; Li et al., 2025). The decentralization inherent in blockchain technology further secures these transactions by distributing control and eliminating single points of failure, which can reduce the chances of fraud and manipulation (Boumaiza, 2025).

This fosters a more reliable and secure environment for investments aimed at combating climate change and promoting sustainable development (Jasim & Hadi, 2025; Li et al., 2025). The integration of AI and blockchain further augments these capabilities, offering significant potential to enhance green finance's accountability, transparency, and decision-making processes, thereby supporting long-term economic and environmental sustainability (Li et al., 2025). The convergence of these advanced technologies promises a robust framework for global climate finance, enabling precise tracking of funds and verifiable impact assessments against established environmental benchmarks. This synergistic approach allows for automated verification of environmental, social, and governance criteria and optimizes resource allocation towards projects with demonstrable climate benefits (Boumaiza, 2025). This integrated approach can also improve regulatory compliance and risk management within sustainable finance, ensuring that investments align with established guidelines and mitigate potential financial and environmental hazards (Kouam, 2024; Rane et al., 2024).

Emerging Reform Models

Despite inertia, new governance models are taking shape. The IMF's CMAP integrates climate risk into macro-surveillance; the World Bank's GRID framework links resilience and social protection; and the AfDB Climate Action Plan (2022–2026) invites local communities to score project results. These examples point toward multidimensional accountability. Parallel discussions about a Global Climate Accountability Charter are gathering momentum. Envisioned as a voluntary but authoritative code, the charter would enshrine transparency, participation, and equity as shared principles, echoing the OECD Paris Declaration model. Networks such as Transparency International and Climate Action Network are already drafting possible indicators. These collaborative efforts aim to establish universally recognized metrics and reporting standards that can significantly enhance the verifiability and comparability of climate finance initiatives across different jurisdictions, moving beyond mere aspirational goals to tangible, measurable progress.

This includes developing robust frameworks for climate finance that incorporate social equity and foster sustainable economic growth (Fu et al., 2023). Such initiatives are crucial for ensuring that climate finance effectively addresses the needs of vulnerable populations and promotes an equitable transition to a low-carbon economy. However, challenges remain, particularly concerning the lack of transparency in conditionalities, interest rates, and overall state obligations in current financing packages, which can perpetuate an unstable and unequal international debt architecture. This often leads to developing nations incurring significant debt burdens without necessarily achieving the intended climate adaptation or mitigation

outcomes (Bozhenko et al., 2023; Digitemie & Ekemezie, 2024). Addressing these transparency deficits is paramount for fostering climate justice and ensuring that financial instruments genuinely support sustainable development without exacerbating economic disparities. The absence of robust accountability frameworks within much of private climate finance—especially in co-invested and blended schemes—exacerbates these disparities by obscuring financial flows and hindering effective oversight (Sullivan, 2021).

This necessitates the development of clear, standardized reporting mechanisms and independent verification processes to ensure that private capital genuinely contributes to climate objectives rather than merely fulfilling corporate social responsibility quotas or greenwashing initiatives. Furthermore, the lack of a universally accepted, grant-equivalent definition for climate finance, unlike other aid flows, complicates accurate measurement and comparability of disbursed resources across diverse institutions and instruments. This ambiguity hinders effective tracking and evaluation, making it challenging to ascertain whether climate finance is genuinely additional to ODA and appropriately targeted towards vulnerability and adaptation priorities. The absence of such a standardized metric, especially the shift to a grant equivalent net flows definition, has historically led to considerable confusion and inconsistency in measuring effective resource transfers. This persistent definitional challenge underscores the imperative for a universally adopted methodology to accurately quantify climate finance contributions and ensure equitable allocation.

This discrepancy impedes clear policy formulation and evaluation, as the true impact and efficacy of climate finance initiatives remain obscured by inconsistent reporting and varied accounting practices. This issue is further compounded by the reliance on confidential data for estimating private climate finance mobilization, rendering independent verification nearly impossible (Zagema et al., 2023). The effectiveness of climate finance is further hampered by the misalignment of donor priorities with recipient country needs, often leading to imposed conditionalities that divert funds from urgent, locally relevant climate initiatives (Nor, 2025). This often results in a mismatch between disbursed funds and actual on-the-ground climate action, thereby undermining the transformative potential of global climate finance. Moreover, project-level reporting is often inconsistent, and the methodologies used to calculate the climate component within broader projects lack standardization, frequently leading to unverifiable claims and inflated figures (Zagema et al., 2023). This calls for a more granular and harmonized approach to reporting, ensuring that financial contributions are transparently linked to specific, verifiable climate outcomes (Qi & Qian, 2023).

The lack of country-specific historical climate data, limited human resources, and inadequate IT infrastructure in many vulnerable regions further exacerbate these challenges, making it difficult to accurately assess climate risks and implement effective adaptation and mitigation strategies (Sarfo-Adu & Kokofu, 2023). These systemic deficiencies collectively underscore the urgent need for a transformative overhaul of accountability frameworks in global climate finance, demanding a shift towards more rigorous, transparent, and equitable mechanisms (Digitemie & Ekemezie, 2024; Qi & Qian, 2023). This paper argues that reimagining accountability frameworks in global climate finance is crucial for ensuring that climate investments genuinely foster climate justice and achieve their intended environmental and social objectives. Specifically, it proposes the integration of robust, internationally harmonized monitoring, reporting, and verification systems, coupled with independent oversight mechanisms, to address the pervasive issues of transparency, data inconsistency, and accountability deficits (Bozhenko et al., 2023).

This approach will enhance the integrity of climate finance flows and facilitate the equitable distribution of resources to those most impacted by climate change, thereby operationalizing the principles of climate justice within fiscal governance (Digitemie & Ekemezie, 2024). This research delves into the complexities of redesigning these accountability frameworks, emphasizing how enhanced transparency and robust enforcement mechanisms can transform climate finance into a more effective instrument for global equity and environmental sustainability (Ballesteros et al., 2010; Basak & Werf, 2019). It further scrutinizes the challenges posed by the prevailing economic development paradigm, which heavily relies on conventional fossil fuels and contributes significantly to global warming (Li & Lin, 2024). Therefore, a critical examination of current financial incentives and their role in perpetuating carbon-intensive economies is essential to realign fiscal policies with climate objectives. This paper therefore investigates how enhanced accountability mechanisms can ensure climate finance genuinely supports sustainable development without exacerbating existing inequalities, ultimately fostering a more just and resilient global response to climate change.

It scrutinizes the efficacy of current green financial reporting frameworks and proposes reforms to align them with the stringent requirements of international climate agreements, such as the Paris Agreement (Sattar et al., 2024). This involves a critical assessment of how existing financial regulations can be strengthened to promote carbon neutrality and discourage investments in fossil fuel-intensive projects (Sattar et al., 2024). It also explores the role of innovative financial instruments and policy interventions in mobilizing private capital towards green investments, while simultaneously mitigating financial risks associated with the transition to a low-carbon economy. The study specifically evaluates the impact of green finance on corporate financial competency, identifying research and development innovation as a key channel for its transformative effect (Li & Lin, 2024). This nuanced understanding is crucial for tailoring financial support to the unique needs of different eco-friendly enterprises, recognizing the sector-specific nature of green finance's effectiveness (Li & Lin, 2024). Furthermore, it investigates the efficacy of various green finance mechanisms, such as green bonds and sustainability-linked loans, in driving corporate environmental performance and fostering a broader shift towards sustainable business practices (Safitri et al., 2024).

The paper also examines how the integration of green finance with carbon accounting can contribute to achieving sustainability goals, particularly in the context of reducing natural resource depletion and carbon dioxide emissions (Wu, 2024). Moreover, it assesses the potential for green finance to stimulate economic growth and job creation in developing countries, analyzing the policy frameworks required to harness these benefits effectively (Rosanti, 2025; Wu, 2024). Ultimately, this research seeks to provide a comprehensive roadmap for advancing climate justice within fiscal governance by redesigning accountability frameworks in global climate finance, fostering a more equitable and sustainable future. To achieve this, the study will analyze various case studies of climate finance initiatives, identifying best practices and areas for improvement in accountability and transparency.

Integrating Multiple Dimensions of Accountability

The material reviewed suggests that oversight is evolving from a single-track concern with legality toward a Triple Accountability Framework: financial, environmental, and social. Under this model, auditors would confirm not only that funds were spent lawfully but also that they reduced emissions and strengthened inclusion. The INTOSAI (2022) environmental

audit standards and the ISSB disclosure requirements provide the necessary technical base. Several national audit offices are adapting. Indonesia's Audit Board now includes environmental indicators in its annual reviews, and South Africa's Auditor-General reports social-impact scores. When professional norms change in this way, the idea of justice moves from theory into daily administrative practice. This paradigm shift necessitates a re-evaluation of current fiscal policies to ensure that they are not only economically viable but also ecologically sound and socially equitable. This expanded scope of accountability ensures that climate finance initiatives are scrutinized through a holistic lens, promoting sustainable development that benefits all stakeholders (Liu & Wu, 2023).

Taken together, these findings show clear progress in transparency but slower movement in fairness. Climate-finance governance answers the question "Was the money spent correctly?" far more easily than "Was it spent justly?" Initiatives such as participatory budgeting, digital tracking, and harmonized reporting demonstrate improvement, yet the moral and distributive core of accountability remains underdeveloped. Bringing climate justice into fiscal oversight therefore requires more than technical upgrades; it calls for a redefinition of what success looks like in public finance. When communities can follow funds from allocation to outcome—and when those outcomes visibly reduce vulnerability—trust in global finance deepens. The next section offers conclusions and policy reflections on how this transformation might be sustained. This involves fostering a relational and moral dimension in accountability, extending beyond mere procedural compliance to encompass responsibility towards broader stakeholder groups (Nichita, 2025). This shift necessitates a re-evaluation of agency theory, moving beyond a narrow focus on principal-agent relations to embrace a more distributed and horizontally integrated approach to leadership and accountability (Heimburg & Ness, 2020; Sumual et al., 2021).

This expanded perspective acknowledges that effective governance requires not only adherence to regulations but also a deep commitment to ethical responsibility and social equity (Schmieg et al., 2017). The integration of these principles within fiscal governance frameworks is paramount for ensuring that climate finance initiatives contribute meaningfully to climate justice and sustainable development globally. This requires moving beyond traditional principal-agent models of accountability, which often focus on hierarchical oversight and compliance, towards frameworks that embrace relational accountability, emphasizing mutual responsibility and collective participation in climate finance decision-making (Heimburg & Ness, 2020; Islam, 2025). Such an approach fosters democratic innovations through co-creation, ensuring that marginalized groups are actively involved and recognized in policy processes, thereby deepening democracy and accelerating the formation of fair societies (Heimburg & Ness, 2020). This reorientation towards inclusive governance structures, emphasizing equal moral entitlements to participate in relevant decision-making processes, is crucial for fostering an ethical response to the vulnerability of populations to environmental harm (Linklater, 2007).

This necessitates a shift from purely transactional accountability mechanisms to more transformative ones that prioritize the legitimate participation of all stakeholders, especially those most affected by climate change, in the design and implementation of climate finance strategies (Ballesteros et al., 2010). This participatory approach can enhance the transparency and effectiveness of climate finance, ensuring that funding truly addresses the needs of vulnerable communities (Heimburg & Ness, 2020). This expanded understanding of accountability moves beyond conventional top-down approaches, incorporating a bottom-up perspective where justice extends to recognition and participation, and responsibility to

actionable accountability (Grasso, 2022). This means fostering a collaborative accountability model that reconciles competing principles within a broader framework, moving beyond the traditional principal-agent assumptions that narrowly define donor-recipient relationships (Ashman, 2001). This broader framework acknowledges the interconnectedness of power, responsibility, and accountability in shaping institutional legitimacy and effectively addressing climate change (Ballesteros et al., 2010).

Therefore, a deeper exploration into the institutional flexibility and value orientations that underpin existing accountability mechanisms is warranted to identify pathways for reform that genuinely promote climate justice (Zhang, 2025). This includes examining how current frameworks align with the principles of relational welfare, which posits that social justice is advanced through participatory parity and equal opportunities for capability development (Heimburg & Ness, 2020). This approach underscores the importance of fostering social capital and trust-based relationships among stakeholders to collectively address climate change challenges (Heimburg & Ness, 2020; Mehan, 2023). This relational perspective ensures that accountability mechanisms are not merely punitive but are designed to nurture social transformation towards securing participatory parity and developing capabilities for well-being (Heimburg & Ness, 2020). This theoretical grounding provides a robust foundation for integrating equity considerations into the practical aspects of fiscal governance, moving beyond superficial adherence to environmental standards to embed a profound commitment to social justice (Heimburg & Ness, 2020).

Specifically, this involves integrating internationally recognized environmental standards within institutional policy frameworks, which not only upholds environmental protection obligations but also bolsters the legitimacy and credibility of climate accountability mechanisms (Zhang, 2025). Moreover, this paradigm shift in accountability extends to critically assessing how existing climate finance initiatives, despite their stated goals, can inadvertently exacerbate inequalities and injustices, particularly affecting marginalized communities in the Global South (Agyemang et al., 2024). Therefore, a robust re-evaluation of current climate accountability mechanisms is essential, shifting from an additive reform path that merely coexists with traditional norms to a substitutive reform path that establishes new, more equitable standards (Zhang, 2025). This calls for a critical examination of the power dynamics inherent in global climate finance, advocating for mechanisms that genuinely empower recipient countries and local communities (Ballesteros et al., 2010). This involves a fundamental reconsideration of how accountability initiatives are designed, moving beyond process-fixation to ensure tangible environmental outcomes and socio-ecological justice, thus avoiding the 'accountability trap' identified in previous research (Mason, 2023).

This necessitates a critical assessment of the enabling and constraining effects of institutional change, particularly as existing socio-material trajectories frequently demonstrate limited responsiveness to "good governance" initiatives (Sareen & Wolf, 2021). Indeed, global greenhouse gas emissions continue to rise despite international agreements and mitigation efforts, underscoring the urgent need for a re-evaluation of current governance paradigms (Sareen & Wolf, 2020). This re-evaluation must prioritize a rights-based approach to health and well-being, recognizing these as universal public values and human rights (Heimburg & Ness, 2020). This framework, therefore, posits that advancements in climate justice within fiscal governance demand a systemic overhaul of accountability mechanisms, moving towards a participatory and relational model that prioritizes equity, human rights, and environmental effectiveness. This paper aims to contribute to this critical discourse by

analyzing existing accountability frameworks in global climate finance and proposing an alternative model rooted in principles of relational accountability and co-creation.

This model will specifically address how redesigned accountability frameworks can foster greater transparency, effectiveness, and fairness in the allocation and utilization of climate finance, particularly within the context of multilateral financial institutions (Zhang, 2025). It will also consider the interplay between different collectives of actors within these organizations and the institutional macro-environment to identify how this influences the institutionalization of organizational action patterns over time (Modell, 2004). It will explore how such a model can overcome challenges related to misaligned incentives and asymmetric information between donors and recipients, as highlighted in agency theory, by fostering a more collaborative and equitable approach to climate finance governance (Basak & Werf, 2019). This includes a focus on strengthening public participation and ensuring rigorous, uniform evaluation processes for all funded projects (Zhang, 2025). Furthermore, the proposed model advocates for the integration of robust dispute resolution mechanisms, addressing the current lack of effective avenues for redress in climate finance projects and moving beyond traditional reliance on internal accountability systems (Zhang, 2025).

CONCLUSION

This study concludes that advancing climate justice in fiscal governance requires a fundamental rethinking of accountability frameworks in global climate finance. While transparency has improved significantly, existing oversight mechanisms remain ill-equipped to evaluate distributive impacts, ensure participation from vulnerable communities, or incorporate justice-based metrics. As long as fiscal governance prioritizes financial efficiency over social and environmental equity, climate finance will continue to reproduce inequalities rather than alleviate them. True accountability demands a multidimensional approach that integrates legal, social, ethical, and technological dimensions of climate finance. Embedding climate justice into fiscal oversight is therefore not an aspirational ideal but an operational necessity for ensuring that climate funds support those most affected by climate change, strengthen adaptive capacities, and contribute to a more sustainable and equitable global future.

LIMITATIONS AND FUTURE RESEARCH RECOMMENDATIONS

The primary limitation of this study lies in its reliance on publicly available documents and secondary data, which restricts access to internal audit records, confidential negotiations, and undisclosed financing arrangements that influence climate finance governance. Variations in terminology, institutional definitions, and inconsistent reporting standards across countries also complicate direct comparison. Furthermore, the concept of climate justice differs across regions, making it challenging to establish universally quantifiable measures for fairness or accountability. As a qualitative review, this study highlights structural patterns rather than empirically testing causal relationships or financial outcomes.

Future research should incorporate empirical investigations that measure the actual distributive impacts of climate-finance mechanisms on vulnerable communities using standardized accountability metrics. Comparative field studies across developing countries would yield insights into how fiscal reforms, participatory budgeting, and digital tracking tools operate under distinct political and socio-economic contexts. Scholars should also explore the integration of artificial intelligence, blockchain, and real-time monitoring

platforms to evaluate whether technological innovations can operationalize climate justice in financial governance. Finally, future work must assess whether emerging accountability frameworks improve resilience outcomes, reduce inequalities, and enhance the legitimacy of climate finance at global and national levels.

REFERENCES

Adisa, O., Ilugbusi, B. S., Chimezie, O., Awonuga, K. F., Adelekan, O. A., Asuzu, O. F., & Ndubuisi, N. L. (2024). International climate finance mechanisms: A review with focus on Africa [Review of International climate finance mechanisms: A review with focus on Africa]. *International Journal of Science and Research Archive*, 11(1), 2356. https://doi.org/10.30574/ijsra.2024.11.1.0146

Agyemang, G., Dhanani, A., Ejiogu, A., & Perkiss, S. (2024). Researching race, accounting and accountability: past, present and future. *Accounting Auditing & Accountability Journal*, 37, 1637. https://doi.org/10.1108/aaaj-03-2024-6976

Alayza, N., & Caldwell, M. (2021). *Financing Climate Action and the COVID-19 Pandemic: An Analysis of 17 Developing Countries*. https://doi.org/10.46830/wriwp.21.00039

Ampaire, E., Mwongera, C., Marois, I. L., & Kinuya, I. (2024). Climate Change Integration and Budgeting in National and Subnational Policies in Tanzania and Uganda. *Research Square*. https://doi.org/10.21203/rs.3.rs-4684680/v1

Anjanappa, J., Samant, S., & Thakur, B. K. (2024). Bridging the Gap: Addressing the Unequal Allocation of Climate Adaptation Finance in Global South. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.4985851

Ashman, D. (2001). Strengthening North-South Partnerships for Sustainable Development. *Nonprofit and Voluntary Sector Quarterly*, 30(1), 74. https://doi.org/10.1177/0899764001301004

Ballesteros, A., Nakhooda, S., Werksman, J., & Hurlburt, K. (2010). Power, responsibility, and accountability: Rethinking the legitimacy of institutions for climate finance. *Climate Law*, 1(2), 261. https://doi.org/10.1163/cl-2010-013

Barbosa, R., Cai, Y., Catalán, M., Deghi, A., Lin, L., Okuda, T., Yenice, M., Zotov, A., Dew-Becker, I., Giglio, S., & Qureshi, M. (2024*). Macrofinancial Stability Amid High Global Economic Uncertainty.*

Basak, R., & Werf, E. van der. (2019). Accountability mechanisms in international climate change financing. *International Environmental Agreements Politics Law and Economics*, 19(3), 297. https://doi.org/10.1007/s10784-019-09437-8

Biswas, M. (2024). *The role of blockchain in green finance: Opportunities and challenges*. https://doi.org/10.61577/ibsm.2024.100003

Boumaiza, A. (2025). Advancing Sustainable Investment Efficiency and Transparency Through Blockchain-Driven Optimization. *Sustainability*, 17(5), 2000. https://doi.org/10.3390/su17052000

Bozhenko, V., Buriak, A., Bozhenko, A., & Roienko, O. (2023). Transparency and Corruption Prevention in Financing Climate Action. *Financial Markets Institutions and Risks*, 7(2), 88. https://doi.org/10.21272/fmir.7(2).88-94.2023

Browne, K. (2021). *Advancing Equity in International Climate Finance: New Approaches to Informal Institutions and Power*. Deep Blue (University of Michigan). https://doi.org/10.7302/2699

Cai, T., Shi, X., Shang, Z., Zhu, X., & Qi, J. (2024). The role of blockchain technology in facilitating finance for metal and mining resources. *Resources Policy*, 99, 105383. https://doi.org/10.1016/j.resourpol.2024.105383

Chowdhury, A., & Jomo, K. S. (2022). The Climate Finance Conundrum. *Development*, 65(1), 29. https://doi.org/10.1057/s41301-022-00329-0

Dafermos, Y. (2025). Climate finance and global justice. *Climate Policy*, 1. https://doi.org/10.1080/14693062.2025.2482104

Digitemie, W. N., & Ekemezie, I. O. (2024). Assessing The Role of Climate Finance in Supporting Developing Nations: A Comprehensive Review [Review of Assessing The Role of Climate Finance In Supporting Developing Nations: A Comprehensive Review]. *Finance & Accounting Research Journal*, 6(3), 408. Fair East Publishers. https://doi.org/10.51594/farj.v6i3.926

ECF Report. (2020). 1. https://doi.org/10.1109/wincom50532.2020.9272414

Etienne, N., Nkurunziza, J., & Martin, M. A. (2025). The impact of sustainable political economy and climate change on cereal yields: empirical evidence from Sub-Saharan Africa. *Discover Agriculture*, 3(1). https://doi.org/10.1007/s44279-025-00229-0

Fu, C., Lü, L., & Pirabi, M. (2023). Advancing green finance: a review of sustainable development [Review of Advancing green finance: a review of sustainable development]. *Digital Economy and Sustainable Development*, 1(1). Springer Science+Business Media. https://doi.org/10.1007/s44265-023-00020-3

Funder, M. (2016). *Policy-makers and climate financing in African LDCs*: The case of Zambia. Research Portal Denmark, 76.

Grasso, M. (2022). *Harming Our World*. In The MIT Press eBooks (p. 79). The MIT Press. https://doi.org/10.7551/mitpress/14293.003.0009

Heimburg, D. von, & Ness, O. (2020). Relational welfare: a socially just response to co-creating health and wellbeing for all. *Scandinavian Journal of Public Health*, 49(6), 639. https://doi.org/10.1177/1403494820970815

Islam, S. (2025). A Systematic Review of Public Budgeting Strategies in Developing Economies: Tools For Transparent Fiscal Governance [Review of A Systematic Review of Public Budgeting Strategies in Developing Economies: Tools For Transparent Fiscal Governance]. *American Journal of Advanced Technology and Engineering Solutions*, 1(1), 602. https://doi.org/10.63125/wm547117

Jasim, Z. A., & Hadi, A. K. (2025). Optimizing Blockchain Network Performance Using Blake3 Hash Function in POS Consensus Algorithm. *IEEE Access*, 1. https://doi.org/10.1109/access.2025.3546723

Kassetty, N., Alang, K. S., & Kandula, S. R. (2024). *Green Finance and Fintech in Banking: Assessing Their Synergistic Impact on Environmental Performance*. https://doi.org/10.21428/e90189c8.a22fda5d

Kouam, A. W. F. (2024). Blockchain Technology and Sustainable Finance: Exploring the Potential for Climate Change Mitigation and Adaptation. *Research Square*. https://doi.org/10.21203/rs.3.rs-5508660/v1

Lazor, O., Лазор, О., Zubar, I. V., Zabolotnyi, A., & Yunyk, I. (2024). The Impact of Digital Technologies on Ensuring Transparency and Minimising Corruption Risks among Public Authorities. *Pakistan Journal of Criminology*, 357. https://doi.org/10.62271/pjc.16.2.357.374

Li, M., Wang, M., & Duan, M. (2025). Atomic and privacy-preserving cyclic cross-chain protocol based on chameleon hash function. *Blockchain Research and Applications*, 100262. https://doi.org/10.1016/j.bcra.2024.100262

Li, T., Lau, W. T., & Yahya, M. H. D. H. (2025). Blockchain Applications in Green Finance for Transparency and Accountability in Sustainable Investments. *Sustainability*, 17(6), 2520. https://doi.org/10.3390/su17062520

Li, Y., & Lin, A. (2024). Assessing the impact of green finance on financial performance in Chinese eco-friendly enterprise. *Heliyon*, 10(7). https://doi.org/10.1016/j.heliyon.2024.e29075

Linklater, A. (2007). *Critical Theory and World Politics: Citizenship, Sovereignty and Humanity*. http://www.loc.gov/catdir/toc/ecip0711/2007006060.html

Liu, C., & Wu, S. (2023). Green finance, sustainability disclosure and economic implications. *Fulbright Review of Economics and Policy*, 3(1), 1. https://doi.org/10.1108/frep-03-2022-0021

Lyeonov, S., Toušek, Z., Bozhenko, V., & Késmárki-Gally, S. E. (2023). The impact of corruption in climate finance on achieving net zero emissions. *Journal of International Studies*, 16(1), 142. https://doi.org/10.14254/2071-8330.2023/16-1/10

Mason, M. (2023). Theorising the climate change accountability of Persian Gulf petrostates. *Environmental Policy and Governance*, 33(6), 631. https://doi.org/10.1002/eet.2082

Mehan, A. (2023). Re-theorizing the collective action to address the climate change challenges: Towards resilient and inclusive agenda. *Canadian Journal of Regional Science*, 46(1), 8. https://doi.org/10.7202/1097156ar

Modell, S. (2004). Performance Measurement Myths in the Public Sector: A Research Note. *Financial Accountability and Management*, 20(1), 39. https://doi.org/10.1111/j.1468-0408.2004.00185.x

Nichita, E.-M. (2025). Book review: Handbook of Accounting, Accountability and Governance, Edited by Garry D. Carnegie and Christopher J. Napier. *Journal of Accounting and Management Information Systems*, 24(3). https://doi.org/10.24818/jamis.2025.03006

Nkoa, B. E. O., Asngar, T. M., & Rutazihana, P. N. (2025). *Does Climate Finance Matter in Reversing the Trend of Natural Resource Depletion in Africa? Fresh Perspectives Using Panel Data*. https://doi.org/10.2139/ssrn.5107857

Nor, M. I. (2025). Investigating donor fulfillment in global climate finance: the role of EU commitment. *Frontiers in Climate*, 7. https://doi.org/10.3389/fclim.2025.1629509

Ozili, P. K. (2022a). Green finance research around the world: a review of literature [Review of Green finance research around the world: a review of literature]. *International Journal of Green Economics*, 16(1), 56. Inderscience Publishers. https://doi.org/10.1504/ijge.2022.125554

Ozili, P. K. (2022b). Green finance research around the world: a review of literature [Review of Green finance research around the world: a review of literature]. *International Journal of Green Economics*, 16(1), 1. Inderscience Publishers. https://doi.org/10.1504/ijge.2022.10048432

Patwardhan, I., Mane, S. B., & Patel, N. (2024). Technical Insights on Blockchain's Role in Financial Systems. *arXiv (Cornell University)*. https://doi.org/10.48550/arxiv.2412.12131

Pickering, J., Betzold, C., & Skovgaard, J. (2017). Special issue: managing fragmentation and complexity in the emerging system of international climate finance. *International*

Environmental Agreements Politics Law and Economics, 17(1), 1. https://doi.org/10.1007/s10784-016-9349-2

Price, R. (2020). *Climate Adaptation: Lessons and Insights for Governance, Budgeting, and Accountability*. https://doi.org/10.19088/k4d.2022.008

Qi, J., & Qian, H. (2023). Climate finance at a crossroads: it is high time to use the global solution for global problems. *Carbon Neutrality*, 2(1). https://doi.org/10.1007/s43979-023-00071-7

Rane, N. L., Rane, J., & Paramesha, M. (2024). *Artificial Intelligence and business intelligence to enhance Environmental, Social, and Governance (ESG) strategies: Internet of things, machine learning, and big data analytics in financial services and investment sectors*. https://doi.org/10.70593/978-81-981367-4-9_3

Reiter, S., Cheng, L. M., Pouponneau, A., Taylor, S., & Wedding, L. M. (2021). A Framework for Operationalizing Climate-Just Ocean Commitments Under the Paris Agreement. *Frontiers in Climate*, 3. https://doi.org/10.3389/fclim.2021.724065

Renzio, P. de, & Wehner, J. (2025). *New Goals, More Actors: Rethinking the Political Economy of Fiscal Institutions* (p. 59). https://doi.org/10.1007/978-3-031-81136-4_3

Rosanti, P. C. (2025). *Peran Green Finance, Nilai Perusahaan, dan Kinerja Lingkungan terhadap Keberhasilan Finansial Perusahaan Indonesia*.

Safitri, N., Fitri, Y., Putri, Z. E., Haribowo, I., SE, A., & SE, R. (2024). Pengaruh Green Financing Terhadap Capital Adequacy Ratio, Non-Performing Loan, Dan Net Interest Margin Perusahaan Pada Sektor Perbankan Di Negara Indonesia, Thailand, Malaysia, Dan Singapura (Periode 2019-2023).

Sareen, S., & Wolf, S. A. (2020). Accountability and Sustainability Transitions. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3607869

Sareen, S., & Wolf, S. A. (2021). Accountability and sustainability transitions. *Ecological Economics*, 185, 107056. https://doi.org/10.1016/j.ecolecon.2021.107056

Sarfo-Adu, G. K., & Kokofu, H. K. (2023). Climate Vulnerability, Justice, and Financing Nexus: A Case For Optimizing Climate Interventions. *Global Journal of Human Social Science*, 17. https://doi.org/10.34257/gjsfrhvol23is5pg17

Sasaki, N. (2025). Addressing Scandals and Greenwashing in Carbon Offset Markets: A Framework for Reform. *Global Transitions*. https://doi.org/10.1016/j.glt.2025.06.003

Sattar, U., Latief, R., Wang, Y., & Sattar, A. (2024). Green financial reporting framework for Paris Agreement parties. *Frontiers in Environmental Science*, 12. https://doi.org/10.3389/fenvs.2024.1335547

Schmieg, G., Meyer, E., Schrickel, I., Herberg, J., Caniglia, G., Vilsmaier, U., Laubichler, M. D., Hörl, E., & Lang, D. J. (2017). Modeling normativity in sustainability: a comparison of the sustainable development goals, the Paris agreement, and the papal encyclical. *Sustainability Science*, 13(3), 785. https://doi.org/10.1007/s11625-017-0504-7

Shirai, S. (2023). Global Climate Challenges, Innovative Finance, and Green Central Banking. In *Asian Development Bank Institute* eBooks. https://doi.org/10.56506/wiuu5747

Singh, K., Komal, K., Singh, Y., & Jazaeri, S. S. (2024). The Potential Application of Blockchain in Green Finance. In *Financial Mathematics and Fintech* (p. 163). Springer Nature. https://doi.org/10.1007/978-3-031-47324-1_10

Sullivan, S. (2021). *Negotiating Climate Change in Crisis*. In Open Book Publishers. https://doi.org/10.11647/obp.0265

Sumual, F. M., Saerang, D. P. E., Karamoy, H., & Tawas, H. N. (2021). Revisiting the determinants of local government performance. *Accounting*, 7(7), 1751. https://doi.org/10.5267/j.ac.2021.4.022

Swarnakar, P., & Shukla, R. (2023). *International Climate Financing and Just Energy Transition*. In Routledge eBooks (p. 343). Informa. https://doi.org/10.4324/9781003433088-26

Tee, K., & Rubbaniy, G. (2025). Introduction of Palm GreenChain, a blockchain-based framework for enhanced traceability, transparency and accountable green bond financing in Malaysia. *Discover Sustainability*, 6(1). https://doi.org/10.1007/s43621-025-01970-8

Torre, M. L., Leo, S., Palma, A., & Zapata, J. D. S. (2023). Public spending and green finance: A systematic literature review. *Research in International Business and Finance*, 68, 102197. https://doi.org/10.1016/j.ribaf.2023.102197

Trinh, H. H., & Tran, T. P. (2024). Global banking systems, financial stability, and uncertainty: How have countries coped with geopolitical risks? *International Review of Economics & Finance*, 96, 103647. https://doi.org/10.1016/j.iref.2024.103647

Udeh, E. O., Amajuoyi, P., Adeusi, K. B., & Scott, A. O. (2024). The role of Blockchain technology in enhancing transparency and trust in green finance markets. *Finance & Accounting Research Journal*, 6(6), 825. https://doi.org/10.51594/farj.v6i6.1181

Wang, Z., Wang, C., Bai, Z., & Song, S. (2025). Green credit risk identification and anti-corruption measures under the application of the multi-layer deep network. *Humanities and Social Sciences Communications*, 12(1). https://doi.org/10.1057/s41599-025-05616-y

Wright, J. (2024). Funding Climate Change Initiatives: Utilising the Law for Enhancing Financial Management in Cities. *Potchefstroom Electronic Law Journal/Potchefstroomse Elektroniese Regsblad*, 27. https://doi.org/10.17159/1727-3781/2024/v27i0a15809

Wu, J. (2024). Role of green finance and carbon accounting in achieving sustainability. *Humanities and Social Sciences Communications*, 11(1). https://doi.org/10.1057/s41599-023-02492-2

Zagema, B., Kowalzig, J., Walsh, L., Hattle, A., Roy, C., & Dejgaard, H. P. (2023). *Climate Finance Shadow Report 2023*. https://doi.org/10.21201/2023.621500

Zhang, Y. (2025). Exploring the Reform and Development Pathways of AIIB's Climate Accountability Mechanism in the Context of Global Climate Governance. *arXiv (Cornell University)*. https://doi.org/10.48550/arxiv.2502.03893

Zhao, X. (2022). *How Blockchain Can Empower the Growth in Green Finance. In Advances in economics, business and management research/Advances in Economics, Business and Management Research* (p. 412). Atlantis Press. https://doi.org/10.2991/978-94-6463-036-7_60

Zinnbauer, D. (2025). *Doing Integrity: Fast: How to Reconcile the Measured Pace of Accountability with the Speed Imperative of the Energy Transition. An Exploratory Literature Scan and Discussion Note.* In *Research Portal Denmark* (p. 29). Technical University of Denmark.