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Assessing Climate Finance Practices in Developing Countries: A Systematic Literature Review

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Abstract

The purpose of this study is to investigate climate financing practice in developing countries by following the systematic literature review process. Emerging scholarly and policy literature conclude that developing and small island Pacific countries are the most vulnerable in the world and similarly they have facing a big gap between the requirement of adaptation and mitigating financing and actual funds received by them. Developing countries are facing various problems such as Local level / beneficiaries' participation & Green Climate Fund mobilization, unified reporting framework challenges, lack of effectiveness in Green Climate Fund (GCF) mobilization and transparency in mobilization, Governance, and policy focus, integrating disaster risk reduction and climate change adaptation in theory and practice etc. By following the rigorous systematic literature review process, it found that these countries are trying to overcome from such problems which may country specific and some have similar to other countries. It is found that government, multilateral and bilateral funding is insufficient so that capacity building of the local communities and attracting of private investment in climate financing activities is crucial to the sustainability roadmap of the countries.

Keywords: Climate finance, Developing countries, Mitigation and adaptation

Introduction

Climate finance, essentially financing for activities related to tackling climate change, doesn't have a straightforward definition. It is become a significant tool that shapes how countries around the world collaborate, determine ways to support development, and come together to

address the global climate challenge. Even after multiple efforts to define and differentiate climate finance from development finance, clarity remains elusive. The evolving idea of what makes climate finance "additional" further complicates the understanding of this concept (Steele, 2015).

The Paris Agreement, which is set to become operational in 2020 after its adoption at the United Nations Framework Convention on Climate Change (UNFCCC), Conference of the Parties (COP 21) in December 2015, emphasizes the critical role of climate finance. Developed nations have committed to mobilizing a minimum of $100 billion annually from 2020 onwards to support climate-related activities such as emission reductions and adaptation measures in developing countries. Nonetheless, the financial requirements for building a climate-resilient and eco-friendly society surpass this figure. While a portion of these funds may come from public sources, the involvement of private finance remains indispensable (Torvanger et al., 2016).

The topic of "Assessing the climate finance practice in developing countries" encapsulates a multifaceted domain encompassing policy frameworks, financial mechanisms, institutional capacities, governance structures, and stakeholder engagement strategies (Ayers & Huq, 2009). Similarly Developing countries exhibit heterogeneous experiences and trajectories in accessing, allocating, and administering climate finances, influenced by diverse contextual factors, including governance dynamics, policy coherence, technical expertise, and socio-economic imperatives (Barbier & Hochard, 2016).

Climate change, with its multifaceted impacts on ecosystems, economies, and societies, necessitates a robust financial response, especially for developing countries that are most vulnerable. The mobilization and effective utilization of climate finance in these nations have garnered attention in academic circles. This literature review aims to explore the prevailing discourse on assessing climate finance in developing countries.

The world is facing a pressing social and environmental challenge, especially for developing countries striving for progress. Despite years of discussions and debates on climate change policies, we've seen limited real-world actions that make a tangible difference on the ground Regmi, B. R., & Bhandari, D. (2012). Similarly, the issue of climate change and its impact on every field of life has increased manifold during the 4.0 industrial revolution. Driving factors of a sector-level carbon intensity which is essential to determine the targeted emissions reduction strategy in the developing economy (Li et al., 2023).

Under the United Nations Framework Convention on Climate Change (UNFCCC), the

international community has agreed to mobilize financial support to help developing countries respond to climate change – to integrate low-carbon solutions into their socio-economic development pathways, and to prepare for climate change and adapt to the unavoidable impacts it will have. Parties to the UNFCCC have agreed to mobilize an initial US$ 100 billion annually from 2020, an amount that is likely to need ramping up over time, and have established new mechanisms like the Green Climate Fund (Canales et al., 2017).

There is a huge gap between required and implemented policies and measures to meet the climate policy target in the Paris Agreement, adopted December 2015. Climate finance, defined as funding of projects to mitigate greenhouse gas emissions, enhance resilience to future climate impacts, or adapt to climate change impacts, is a vital component of the required climate policy framework to meet the climate policy ambitions. The annual 100 billion USD target for climate mitigation and adaptation in developing countries by 2020 is a first marker of climate finance for developing countries, but the estimated need to de-carbonize economies and build climate resilient infrastructure is much higher. USD 6 trillion in infrastructure investments is required annually in the period 2015 – 2030 to limit human-induced warming to 2 °C by year 2100. Government funding will be insufficient, so a sizeable share has to come from private sources. This raises the issue of how the private sector can be mobilized to provide a sizeable share of climate funding (Torvanger et al., 2016).

Developing countries in the Asia pacific region are increasingly utilizing their national budgetary systems to mobilize a significant portion of their domestic resources to climate related developments. Further strengthening of the national environment to access international climate finance and alternative-source funding, so that it can complement domestic resources, has become a priority in the region in light of the rapidly growing climate change (Curuki, 2019).

Emerging literature therefore calls for national-level coordination of climate finance to increase efficiency in the use of funds, reduce duplication, and ensure that its mobilization contributes to achieving national climate and development objectives in low-income countries (Pickering et al., 2015).

Many low-income countries has limited coordination of climate finance contributes to the already significant difficulties of gaining access to funding (Thwaites & Manel Amerasinghe, 2018) and leads to the inefficient use of funds, low transparency and accountability (Pickering et al., 2015), and potential barriers to achieving or reinforcing other sustainable development objectives (Halonen et al., 2017 as cited in (Shawoo et al., 2022)). In contrast, coordinated

funding is assumed to produce greater benefits, such as when donors respect nationally-determined priorities, use country systems for implementation, and coordinate activities with other funders (Abdel-Malek, 2015) as cited in Shawoo et al., 2022).

Similarly, equity considerations remain paramount in climate finance discourse. Brown & Corbera (2003) explored the equity implications of climate finance, emphasizing that developing countries often face unequal access due to stringent eligibility criteria and donor-driven agendas. They advocated for equity-focused financing mechanisms that prioritize vulnerable communities, ensuring social inclusion and resilience-building.

Moreover, there is a need for research that delves into the governance structures, institutional capacities, and stakeholder dynamics influencing climate finance utilization in developing countries. Understanding these aspects is essential for identifying barriers, facilitating best practices, and optimizing the impact of climate finance on sustainable development goals (UNECE - United Nations Economic Commission for Europe, 2010).

This lack of clarity introduces ambiguity into the guidelines governing GCF operations. Additionally, concerns arise over the transparency and accountability measures governing the distribution and utilization of funds allocated for projects targeting local adaptation, indicating potential shortcomings in oversight mechanisms. Moreover, the presence of accredited entities without the requisite expertise to proficiently design and implement projects for local finance delivery raises questions about the effectiveness and competency of these entities within the GCF's initiatives. (Omukuti et al., 2022).

The primary objective is to delve into an extensive array of financial instruments tailored for climate finance from developed to developing nations. This exploration places particular emphasis on identifying suitable mechanisms to incentivize and mitigate risks associated with private finance across various sectors and national contexts. The evaluation of these financial instruments draws insights from a comprehensive literature review supplemented by several case studies, as highlighted by (Torvanger et al., 2016).

Specifically, the research systematically investigates to how political and technical forces shape climate finance coordination in contexts with varying country ownership over the coordination process. Shawoo et al., (2022) adds a new dimension to calls for greater country ownership, which we suggest needs to be paired with a critical examination of political struggles and contestation.

This research delves into an exploration of climate financing practices in developing countries, spanning both historical and contemporary contexts. After the systematic review

process authors expect to get the answer from following research question

- How do different financial instruments can be used by developing countries for climate finance, and what are the implications for incentivizing and de-risking private finance?
- How have climate financing practices evolved in developing countries over time, what are the recent challenges faced by these countries, and what gaps exist in the current practice landscape?

Methods of Data Collection and Analysis

In setting the foundation for this systematic literature review, researcher initiated with accurately crafted research query. To navigate through the vast expanse of available literature, the exact phrase "Assessing Climate Finance" was strategically employed. This phrase was pivotal, anchoring the review to focus specifically on the nuanced assessment facets associated with climate finance.

An in-depth examination is undertaken to scrutinize the evolution of climate financing mechanisms in developing countries, encompassing both past and present scenarios. By elucidating the contemporary challenges faced by these countries, the research endeavors to pinpoint and summarize the existing discrepancies and gaps in practices pertinent to this thematic domain, employing a rigorous systematic literature review methodology (Pati & Lorusso, 2018).

To further delimit the scope and ensure relevancy, a set of inclusion and exclusion criteria was established. Articles were earmarked for inclusion only if they featured the exact phrase "Assessing Climate Finance" and integrated at least one reference to "Practice in Developing Countries." This dual criterion aimed to summarize literature that harmoniously bridged assessment methodologies with practical applications within developing contexts.

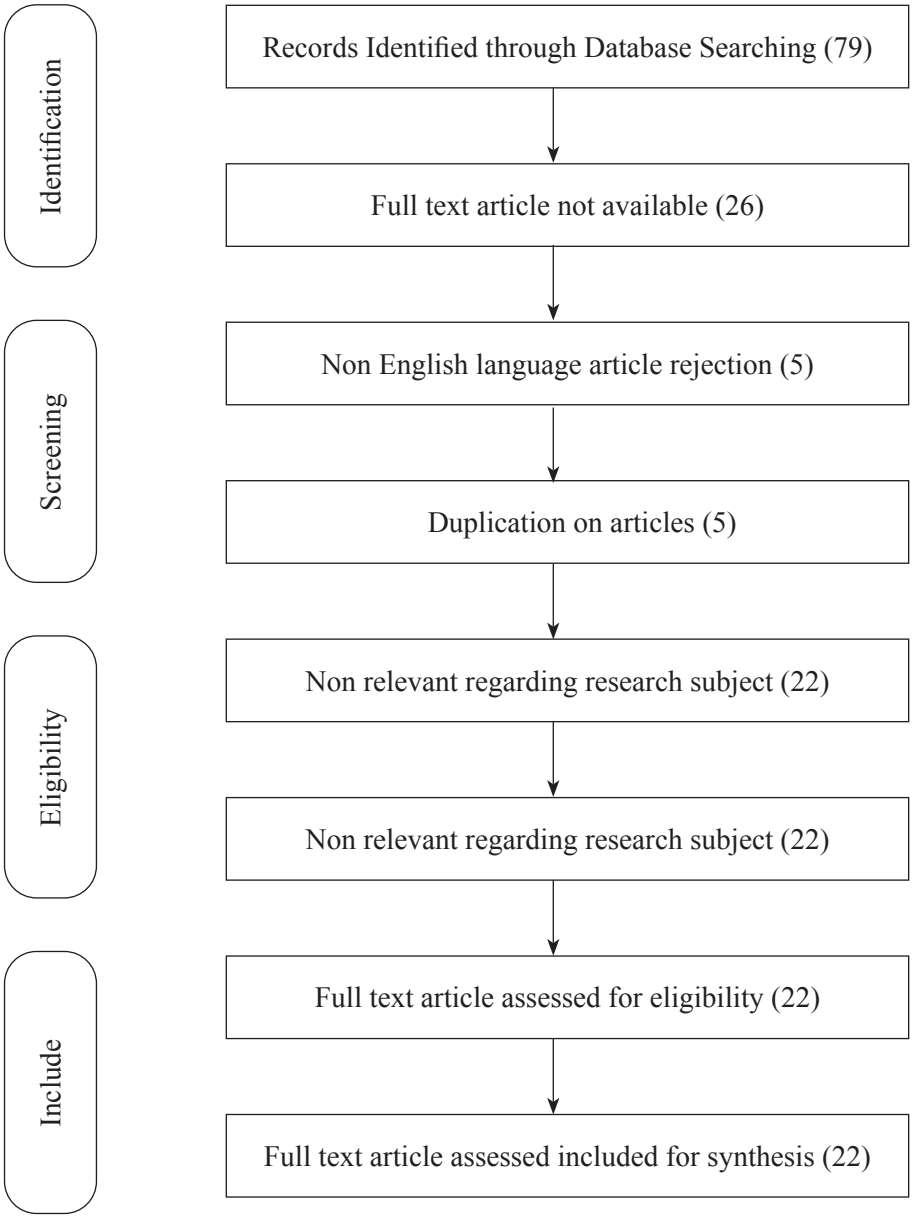
Utilizing Google Scholar as the primary platform, easily available and reliable academic database, the researcher tapped into its resources. The advanced search functionalities of Google Scholar were harnessed, allowing for a more refined extraction process. By stipulating specific parameters, such as keyword occurrences, the team endeavored to unearth literature most aligned with the research's core objectives.

Total 79 results are shown by the data base. Upon the initial retrieval phase, a significant 26 articles were identified as not getting full text article, thereby rendering them in assessable for the review process. Recognizing the importance of accessibility and comprehensiveness, these articles were systematically rejected from further consideration. Additionally, to maintain linguistic

coherence and streamline the analysis, articles not in English were promptly excluded.

Figure 1

Systematic review and meta-analysis(PRISMA) flow diagram



During the screening process, a vigilant effort was exerted to eliminate duplicates. Five such articles were discerned and consequently excluded, ensuring that the review remained devoid of redundant content. Similarly, four non English articles were rejected for the study. From the initial pool, 22 articles were adjudged as non-relevant, further enhancing the selection criteria and enhancing the review's precision.

After crossing the rigorous phases of screening, filtering, and exclusion, the systematic methodology concluded in a selection of 22 articles. This final compilation epitomizes a synthesis of rigorous methodology, unwavering focus, and meticulous scrutiny. By navigating through such a structured trajectory, researcher aimed to distill insights that resonate deeply with the intricate landscape of climate finance practices in developing countries.

Table 1

Literature considered for SLR

S.N	Authors	Title	Citation Number	Year	Publisher
1	Samuwai & Hills (2018)	Assessing climate finance readiness in the Asia-Pacific region	42	2018	MDPI
2	Torvanger et al.(2016)	Instruments to incentivize private climate finance for developing countries	11	2016	CICERO Center for International Climate and Environmental Research-Oslo
3	Shawoo et al.(2022)	Country ownership in climate finance coordination: a comparative assessment of Kenya and Zambia	3	2022	Taylor & Francis
4	Xie et al.(2023)	Rebalancing climate finance: Analysing multilateral development banks' allocation practices	4	2023	Elsevier

S.N	Authors	Title	Citation Number	Year	Publisher
5	Curuki (2019)	Will the tide of climate finance finally turn in our favor? Three essays on assessing and mobilizing climate finance in Oceania post Paris agreement.	1	2019	The University of the South Pacific
6	Canales et al. (2017).	Climate finance for the Indian Ocean and African small island developing states	8	2017	Stockholm Environment Institute.
7	Garschagen & Doshi(2022)	Does funds-based adaptation finance reach the most vulnerable countries?	29	2022	Elsevier
8	Omukuti et al. (2022)	The green climate fund and its shortcomings in local delivery of adaptation finance	19	2022	Taylor & Francis
9	Samuwai, J. (2021)	Understanding the climate finance landscape and how to scale it up in Pacific small island developing states	5	2021	UN. ESCAP
10	Doku et al.(2021)	Determinants of climate finance: Analysis of recipient characteristics in Sub-Sahara Africa	8	2021	Taylor & Francis
11	Anantharajah (2019)	Governing climate finance in Fiji: Barriers, complexity and interconnectedness	7	2019	MDPI
12	Oxfam International (2022)	Unaccountable Accounting: The World Bank's unreliable climate finance reporting	4	2022	Oxfam International

S.N	Authors	Title	Citation Number	Year	Publisher
13	Anantharajah, K(2021)	Racial formation, coloniality, and climate finance organizations: Implications for emergent data projects in the Pacific	7	2021	SAGE Publications Sage UK: London, England
14	Sudmant et al.(2017).	Understanding the case for low-carbon investment through bottom-up assessments of city-scale opportunities	30	2017	Taylor & Francis
15	Tunji-Olayeni et al.(2019).	Climate change mitigation and adaptation strategies for construction activities within planetary boundaries: Limitations of developing countries	12	2019	IOP Publishing
16	AdaptationWatch (2016)	Towards Transparency	0	2016	Adaptation Watch
17	Pannier et al.(2020)	The three dialectics of adaptation finance in Vietnam	2	2020	MDPI
18	Medina Hidalgo et al.(2021)	Climate change adaptation planning in remote contexts: insights from community-based natural resource management and rural development initiatives in the Pacific Islands	9	2021	Taylor & Francis
19	Keweloh(2015)	Integrating Disaster Risk Reduction and Climate Change Adaptation in Theory and Practice. A Case Study of the Red Cross and Red Crescent Movement in Asia	2	2015	IFHV Working Paper Series

S.N	Authors	Title	Citation Number	Year	Publisher
20	Nakatani (2021)	Fiscal rules for natural disaster-and climate change-prone small states	20	2021	MDPI
21	Li et al. (2023)	A revaluation of carbon intensity factors through the carbon decomposition approach in a developing economy	0	2023	Taylor & Francis
22	Bécault et al. (2016)	Getting ready for climate finance: The case of Rwanda	4	2016	University of Namur, Department of Economics

Source: Author's compilation

Result Discussion

Developing and low income countries are most vulnerable from the climate change impact. Each of the countries are facing unique challenge and some have homogeneous challenges for adaptation and mitigation of climate finance impact. Due to limitations of resources and policy frameworks in least develop and developing countries climate financing is highly dependent in developed countries' financing, bilateral and multilateral agency's funding.

Gap in adaptation and mitigation finance in developing countries

The bulk of climate finance from multilateral development banks (MDBs) predominantly favors mitigation projects, primarily directed towards a select group of relatively affluent nations. Interestingly, this allocation aligns more closely with countries' greenhouse gas emissions than with their susceptibility to climate-related risks. Shifting towards a balanced distribution between mitigation and adaptation efforts could notably diminish global climate vulnerability for an additional 1.9 billion individuals without imposing significant alterations on the annual growth rate of emissions. This study enriches the discourse surrounding global equity in climate finance distribution and underscores the societal repercussions of climate change. Furthermore, the research underscores that while MDBs' climate finance is correlated with countries' greenhouse gas emissions, it does not necessarily align with their vulnerability to climate risks (Xie et al., 2023). Due to the limitation of government financial, multilateral

and bilateral funding attraction of private sector funding to climate financing is crucial. However, in the case of Pacific Small Island Developing States(PSIDs) face challenges in accessing climate finance, particularly from private sector sources (Sauwai, 2021). Similarly, Sauwai (2021) states that a significant portion of global climate finance is mitigation-centric, while Pacific SIDS predominantly require adaptation initiatives.

Due to the limitation of public funding Bécault et al. (2016) recommended that adaptation and mitigation work role of local institutions, including districts and Non-government organizations (NGOs), play a crucial role in implementing climate change-related projects. Similarly, there is a need to attract greater private sector investments targeting climate adaptation projects.

Gap in readiness levels between the Asian and Pacific sub-regions and Policy framework

Readiness of the country is the current mantra of the climate finance discourse and is a key determinant for accessing climate finance. However, the research finds that there's a significant readiness gap between Asian sub-region countries and Pacific sub-region countries concerning accessing climate finance this research constructs and implements a comprehensive three-dimensional framework to evaluate the preparedness for climate finance across chosen Asia-Pacific nations. The framework identifies three critical dimensions: (1) Policies and Institutions, (2) Knowledge management and learning, and (3) Fiscal policy environment. Grounded in the Climate Public Expenditure and Institutional Review, the study reveals a significant disparity in readiness levels between countries within the Asian sub-region and those within the Pacific sub-region (Xie et al., 2023). Similarly, the paper (Curuki, 2019) supports that current approaches towards accessing and mobilizing climate finance require significant re-orientation to better align with PSIDS' unique needs, priorities, and challenges.

Similarly, readiness for adaptation finance in Vietnam is influenced by various factors, including the balance between development and adaptation goals, and the allocation and utilization of resources from different channels ((Xie et al., 2023).

Contextual varies among the countries

All financial instruments are not universally applicable across different contexts or sectors within developing countries (Torvanger et al., 2016). Countries needs to evaluate the suitability of financial instruments based on criteria such as leverage ratio, scaling-up potential, and reliability.

Commitment and actual disbursement challenge in financing

International financial support will play a critical role in the ability of Indian Ocean and African Small Island Developing States (SIDS) to respond to climate change. There's a notable difference between committed climate finance and actual disbursed amounts, raising questions about the efficiency and effectiveness of the allocation process (Xie et al., 2023). However, the paper Doku et al., (2021) explores that Sub-Sahara African countries with higher population growth rate, higher poverty levels, better ease of doing business profile, weaker governance policies, weaker control of corruption, stronger rule of law enforcement, deepened social inequality, and better information and communication technologies (ICT) usage have attracted more climate finance. Policy implications of the study are discussed and it has been statistically proved that the relationship between these characteristics and climate finance is statistically significant, suggesting policymakers and stakeholders can leverage these insights.

Political commitments and technical factors

Political dynamics, encompassing power structures, interpretations of climate finance, and vested interests, significantly influence interactions among stakeholders, thereby impeding cohesive coordination within the climate finance area. This introduces an additional layer to the advocacy for enhanced country ownership, emphasizing the necessity for a discerning evaluation of political conflicts and disputes. The research has been done in Kenya and Zambia. Similarly, the paper reveals that while country ownership is essential, it needs to be critically examined in light of political struggles, contestation, and vested interests (Xie et al., 2023).

Similarly developing countries are most vulnerable to climate change effects but factors such as economic constraints, technological limitations, and institutional barriers limit their mitigation and adaptation efforts (Tunji-Olayeni et al., 2019).

Local level/Beneficiaries participation for Green Climate Fund mobilization and reporting unified framework challenges

Three key barriers still prevent it from delivering finance to the local level. First, the Green Climate Fund (GCF) faces challenges due to the absence of a cohesive framework that clearly delineates the parameters of the local level, local stakeholders, and processes for local adaptation. Additionally, GCF demonstrates restricted transparency and accountability concerning the allocation and utilization of funds designated for adaptation, especially within projects purportedly targeting local level adaptation results. Furthermore, certain Accredited Entities exhibit inadequate experience and capability in devising and executing projects aimed at facilitating finance delivery at the local level. Similarly, the paper finds that GCF lacks a

clear and unified framework for defining and identifying what constitutes the 'local level,' leading to implementation challenges (Omukuti et al., 2022).

Likewise, the paper Anantharajah, (2019) finds that identified a complex landscape of barriers that climate governors in Fiji face, categorized into four levels of deepening entrenchment. The study found that these barriers interrelate between levels, creating complex chains of entrenchment. A superficially tractable issue may be rendered less so by being rooted in a more entrenched issue. Empirically, this paper delineates the complex landscape of challenges, or 'context', that Fijian climate governors must understand in order to deliver effective governance solutions. Beyond this, this research offers a framework of broader application through which climate governors may conceptualize complex barriers.

However, Pannier et al., (2020) concludes that there is no one-size-fits-all framework for assessing a country's institutional readiness for adaptation finance, highlighting the need for country-specific analyses.

Climate change adaptation projects are progressively being formulated using a combination of external and internal resources, notably in developing nations. Given the persistent threats posed by climate change to susceptible communities, it becomes increasingly crucial to discern insights from the planning and execution phases of these adaptation strategies. This urgency is heightened for communities situated in remote areas, where access to resources and supportive services remains constrained.

Similarly, Medina Hidalgo et al., (2021) the recommended that future initiatives should prioritize the integration of local/traditional knowledge with external resources to enhance sustainability and effectiveness and emphasize long-term engagement and commitment to communities, moving beyond short-term projects and policies to ensure effective and sustained implementation.

Likewise, Bécault et al., (2016) provide a comprehensive assessment of the state of climate finance readiness in the Republic of Rwanda so to identify key opportunities for strengthening the country's performance in accessing and delivering increasingly larger amounts of climate finance from international public and private sources. The finding of paper summarize that Rwanda has achieved a relatively advanced level of climate finance readiness, emphasizing strong political leadership and commitment.

Effectiveness in Green Climate fund (GCF) mobilization and transparency in mobilization

Garschagen & Doshi (2022) states that while the GCF allocates funds largely to priority country groups like least developed countries (LDCs,) African countries. There are disparities

in addressing the most vulnerable countries with weak institutional capacities. Similarly, countries with high climate vulnerability but weak government institutions, especially LDCs in Africa and conflict-ridden countries, face challenges in accessing project funding. Therefore, the findings emphasize the necessity to strengthen simplified approval tracks in the climate finance architecture. This ensures that countries with the lowest institutional capacity but the highest vulnerability are not left behind, aligning with the broader goal of equitable and effective climate finance.

Lack of standardized reporting mechanisms has led to contrasting statements on financial contributions, eroding trust and hindering effective climate finance. AdaptationWatch (2016) states that develop a clear and universal system of accounting modalities for adaptation finance to ensure consistency and transparency. Oxfam International, (2022) reports conclude that The World Bank should adopt and implement enhanced disclosure practices, including detailed assessments, cost estimates, methodologies, and justifications for its climate finance activities. The bank need to develop and implement standardized methodologies and reporting frameworks for tracking and reporting climate finance, addressing ambiguities, inconsistencies, and aligning with global norms.

Various financial instruments exist to mitigate risks or lower costs associated with climate-related projects and initiatives in developing nations. These instruments can be categorized into revenue support, credit enhancement, direct investments, and insurance. A larger proportion of these tools are tailored for risk mitigation rather than cost reduction, particularly focusing on mitigating market and commercial risks. Regarding cost reduction, most instruments influence either transaction costs or the expected rate of return. However, it's essential to recognize that not every financial instrument is universally applicable across all scenarios. When evaluating these financial instruments based on metrics such as the leverage ratio (private finance mobilized per unit of public expenditure), scalability potential, and reliability, it becomes evident that their efficacy is largely contingent upon specific contextual factors. Primarily, this includes the investment climate within a country and the particular sectors targeted for investment (Torvanger et al., 2016).

Governance and policy focus

There are notable chances to channel current financial resources towards more efficient, environmentally friendly alternatives, thereby stimulating considerable fresh investments in climate mitigation. Two primary reasons are identified for not capitalizing on these opportunities. Firstly, the optimal strategies for cost-effectiveness differ significantly depending

on the specific context, varying across regions and sectors. As a result, broad-scale evaluations of climate finance distribution often provide inadequate insights into the detailed opportunities for sustainable investment at a granular level. Secondly, the absence of supportive governance structures impedes the realization of these economical, low-carbon investment prospects (Sudmant et al., 2017).

Nakatani, (2021) tries to explore how should small states formulate a countercyclical fiscal policy to achieve economic stability and fiscal sustainability when they are interesting to natural disasters, climate change, commodity price changes, and uncertain donor grants? Finally, the paper contributes to Innovative Fiscal Rule which is proposed a third-generation fiscal rule termed as the "natural disaster-resilient fiscal rule," which focuses on recurrent expenditure based on non-resource and non-grant revenue.

Li et al., (2023) tries to evaluate the driving factors influencing sector-level carbon intensity in Pakistan's agriculture, services, and industrial sectors from 2006 to 2019 and the study provide a comprehensive analysis of sector-level carbon intensity in Pakistan's on above sectors from 2006 to 2019, highlighting the key driving factors influencing CO2 emissions. Similarly, the paper advocate for the adoption and implementation of policy recommendations, including technological advancements, energy efficiency measures, and infrastructure projects under the CPEC program, to achieve sustainable development goals in Pakistan.

Integrating disaster risk reduction and climate change adaptation in theory and practice

Keweloh, (2015) tries to explore the coherence of guidance and practices on disaster risk reduction (DRR) and climate change adaptation (CCA) within the Red Cross and Red Crescent (RC/RC) Movement. The paper tries to Identified a conceptual confusion regarding the relationship between DRR and CCA, as well as the concepts of mainstreaming and integration, leading to inconsistencies in practices. Finally, the paper contributes to aimed the limited body of and knowledge on DRR and CCA integration in practice, providing insights into factors leading to inconsistencies and proposing strategies for better alignment between policies and practices.

Table 2

Summary of findings

Authors	Finding	
Samuwai & Hills (2018)	1.	A significant gap exists in readiness levels between the Asian and Pacific sub-regions.
	2.	While readiness plays a role, its impact on accessing climate finance is limited.
	3.	PSIDS heavily rely on multilateral and private flows for climate finance, which may not be the most effective approach given their readiness status.
Torvanger et al.(2016)	1.	*Suitability varies by context:* The effectiveness of financial instruments depends significantly on the country's investment climate and the specific sectors targeted.
	2.	*Combination approach:* Financial instruments are often most effective when used in combination to address multiple risks and challenges.
	3.	*Agency mandate and goals:* The objectives and mandates of agencies providing climate finance influence the selection and application of financial instruments.
	4.	*Procedure for assessment:* A structured procedure for evaluating climate finance instruments is presented, emphasizing barriers, solutions, and checkpoints.
Shawoo et al.(2022)	1.	*Political dynamics:* Political factors such as power dynamics, framings of climate finance, and vested interests significantly influence climate finance coordination in both Kenya and Zambia.
	2.	*Technical influences:* Technical factors also play a role but are intertwined with political dynamics, impacting how actors interact and coordinate within the climate finance landscape.
	3.	*Country ownership:* The study reveals that while country ownership is essential, it needs to be critically examined in light of political struggles, contestation, and vested interests.

Authors	**Finding**
Xie et al.(2023)	1. *Mitigation focus:* The majority of MDB climate finance is directed towards mitigation projects, primarily benefiting a few relatively wealthy countries. 2. *Correlation patterns:* MDB climate finance positively correlates with countries' greenhouse gas emissions but does not align with their vulnerability to climate risks. 3. *Potential impact:* Transitioning towards a more balanced allocation between mitigation and adaptation could significantly reduce global climate vulnerability, benefiting an additional 1.9 billion people without major changes in emission growth rates.
Curuki (2019)	1. *Priority elements for PSIDS:* Climate Finance Readiness, Green Climate Fund financing, and Nationally Determined Contributions emerge as top priorities for PSIDS within the UNFCCC framework. 2. *Challenges and opportunities:* The research identifies specific challenges, opportunities, gaps, and potential strategies related to each climate finance element for PSIDS. 3. *Policy re-orientation needs:* Current approaches towards accessing and mobilizing climate finance require significant re-orientation to better align with PSIDS' unique needs, priorities, and challenges.

Authors	Finding
Canales et al. (2017).	1. *Disparity in allocation:* A significant portion of climate finance is concentrated in Cape Verde and Mauritius, with Least Developed Countries receiving the least. 2. *Concessional loans dominance:* Nearly three-quarters of the committed funds are in the form of concessional loans, indicating a debt-related financial structure. 3. *Sectoral concentration:* Climate finance predominantly benefits sectors like water and sanitation, energy, and general environmental protection, suggesting a narrow focus. Disbursement Inefficiencies: The actual disbursement of committed funds is considerably lower than other ODA flows, indicating potential inefficiencies or challenges in implementation
Garschagen & Doshi (2022)	1. *Ambiguous allocation:* While the GCF allocates funds largely to priority country groups like LDCs, African countries, and SIDS, there are disparities in addressing the most vulnerable countries with weak institutional capacities. 2. *Missed opportunities:* Countries with high climate vulnerability but weak government institutions, especially LDCs in Africa and conflict-ridden countries, face challenges in accessing project funding. 3. *Limited direct access:* Most countries have not accessed project funds independently through national entities, indicating limitations in direct access and country ownership.

Authors	**Finding**
Omukuti et al. (2022)	1. *Ambiguous definition:* GCF lacks a clear and unified framework for defining and identifying what constitutes the 'local level,' leading to implementation challenges. 2. *Transparency and accountability issues:* Limited transparency exists in how approved funds for local-level adaptation are utilized, creating accountability concerns. 3. *Capacity and experience:* Some Accredited Entities face challenges in designing and implementing projects focused on local-level finance due to limited experience and capacity. 4. *Operationalization gap:* Despite its commitment, GCF's operationalization of support for local adaptation remains limited, with barriers hindering effective implementation.
Samuwai, J. (2021)	1. *Climate finance definitional challenges:* Lack of a standardized definition complicates tracking and assessing climate finance flows. 2. *Imbalance in global climate finance:* A predominant focus on mitigation leaves a gap for adaptation initiatives crucial for Pacific SIDS. 3. *Limited private sector engagement:* Private sector investments, especially in adaptation, remain limited for Pacific SIDS. 4. *Accreditation and capacity challenges:* Few Pacific-based institutions are accredited to the GCF due to technical, administrative, and co-financing challenges.

Authors	Finding
Doku et al.(2021)	1. *Positive factors:* Higher population growth rate, higher poverty levels, better ease of doing business profile, weaker governance policies, weaker control of corruption, stronger rule of law enforcement, deepened social inequality, and better ICT usage tend to attract more climate finance to Sub-Saharan African countries. 2. *Statistical significance:* The relationship between these characteristics and climate finance is statistically significant, suggesting policymakers and stakeholders can leverage these insights. 3. *Variations:* Sensitivity analysis reveals variations in the determinants of climate finance across different quantiles, emphasizing the need for tailored approaches.
Anantharajah (2019)	1. *Complex landscape of barriers:* Identified a complex landscape of barriers that climate governors in Fiji face, categorized into four levels of deepening entrenchment. 2. *Interrelation of barriers:* Found that barriers interrelate between levels, creating complex chains of entrenchment where superficially tractable issues may be rooted in more entrenched problems. 3. *Empirical delineation:* Empirically delineated the challenges or 'context' that Fijian climate governors must understand to deliver effective governance solutions.
Oxfam International (2022)	1. *Lack of independent verification:* The World Bank's claimed levels of climate finance cannot be independently verified, with potential discrepancies of up to $7bn or 40% based on Oxfam's audit. 2. *Inadequate transparency:* Insufficient disclosure and documentation from the World Bank regarding its climate finance assessments, methodologies, and justifications. 3. *Need for standardization and clarity:* Ambiguities and inconsistencies in reporting and methodologies, highlighting the necessity for standardized and transparent practices.

Authors	**Finding**
Anantharajah, K (2021)	1. *Racial and colonial influences:* Identified latent racial and colonial schemas influencing emergent climate finance data projects and organizations. 2. *Mediation of resources:* Highlighted the racial mediation of finance and knowledge, emphasizing disparities and potential injustices in resource allocation. 3. *Techno-benevolent risks:* Cautioned against the risks of perpetuating colonial inequalities through well-intended technological solutions in climate finance.
Sudmant et al. (2017).	1. *Missed opportunities:* Significant opportunities exist in developing world cities to redirect existing finance streams towards cost-effective, lower-carbon options. 2. *Context-specific measures:* Cost-effective measures vary significantly based on the local context, necessitating specific local research. 3. *Governance challenges:* The lack of enabling governance arrangements hinders the exploitation of these cost-effective, low-carbon investment opportunities.
Tunji-Olayeni et al.(2019).	1. *Climate strategies:* The paper reviews several strategies within the construction industry, including the use of green energy, sustainable materials, innovative designs, and waste recycling. 2. *Vulnerabilities in developing countries:* Developing countries face significant vulnerabilities due to climate change, but factors such as economic constraints, technological limitations, and institutional barriers limit their mitigation and adaptation efforts.

Authors	Finding
AdaptationWatch (2016)	1. *Historical context:* The paper traces the history of key climate finance initiatives, emphasizing the promise made at Copenhagen in 2009. 2. *Transparency concerns:* There are significant inconsistencies, vagueness, and tensions in climate adaptation finance reporting, undermining trust and effectiveness. 3. *Performance assessment:* Developed countries' compliance with UNFCCC climate finance transparency requirements has declined, indicating persistent challenges in reporting and accountability
Pannier et al.(2020)	1. *Complex landscape:* The adaptation finance in Vietnam is shaped by a complex interplay between official finance mechanisms and local social dynamics. 2. *Institutional readiness:* The readiness for adaptation finance in Vietnam is influenced by various factors, including the balance between development and adaptation goals, and the allocation and utilization of resources from different channels.
Medina Hidalgo et al.(2021)	1. *Integrated strategies:* Communities prioritize integrated strategies that align with multiple development goals, such as food security, health, marine resource management, and livelihoods. 2. *Contextual relevance:* While specific contexts may vary, the identified themes are likely relevant to other subsistence-dominated rural peripheral communities within Fiji and the Pacific Islands region.
Keweloh(2015)	1. *Conceptual confusion:* Identified a conceptual confusion regarding the relationship between DRR and CCA, as well as the concepts of mainstreaming and integration, leading to inconsistencies in practices. 2. *Need for alignment:* Emphasized the necessity for developing a common approach to DRR and CCA integration, supported by clear theoretical frameworks, tools, and guidance for better alignment between policies and practices.

Authors	**Finding**
Nakatani (2021)	1. *Innovative fiscal rule:* Proposed a third-generation fiscal rule termed as the "natural disaster-resilient fiscal rule," which focuses on recurrent expenditure based on non-resource and non-grant revenue. 2. *Practical applicability:* Demonstrated that the proposed fiscal rule framework is practical and useful for countercyclical policy tools in Pacific island countries, such as PNG, to handle natural disasters, volatile resource revenues, and uncertain foreign grants.
Li et al. (2023)	1. *Sectoral performance:* Agriculture sector showed an average performance due to government policies promoting environmentally friendly technologies and efficient water usage. In contrast, the industrial and service sectors exhibited mixed results over different periods. 2. *Driving factors:* Economic and energy usage efficiency effects demonstrated a high association with above-average performance, while the GDP gap effect had a lower performance in influencing sectoral carbon intensity. 3. *Policy implications:* Emphasized the importance of technological advancement, energy consumption efficiency, and policy initiatives such as CO2 emissions taxation and energy projects under the China-Pakistan Economic Corridor (CPEC) program.
Bécault et al. (2016)	1. Rwanda has achieved a relatively advanced level of climate finance readiness, emphasizing strong political leadership and commitment. 2. Effective planning requires alignment with scientific assessments and evidence-based knowledge dissemination. 3. Local institutions, including districts and NGOs, play a crucial role in implementing climate change-related projects.

Table 3

Theme based summarization

Thematic area		Summary of analysis
Climate Finance Readiness and Access in Specific Regions	Samuwai & Hills (2018),Curuki (2019) ,Canales et al. (2017),Bécault et al. (2016),Medina Hidalgo et al.(2021)	These studies emphasize the readiness levels and access to climate finance in specific regions. The research focuses on assessing the gaps and distinctions within regions like the Asia-Pacific, Oceania post-Paris Agreement, the Indian Ocean, African Small Island Developing States (SIDS), and Rwanda. The overarching goal is to identify strategies, policies, and frameworks that enhance the capacity of these regions to access and mobilize climate finance effectively.
Financial Instruments, Allocation, and Disbursement of Climate Finance	Torvanger et al.(2016),Xie et al.(2023),Garschagen & Doshi(2022) , Omukuti et al.(2022),Nakatani (2021)	This theme explores the mechanisms, instruments, and practices related to climate finance allocation and disbursement. It investigates various financial instruments designed to incentivize private climate finance, examines the allocation practices of multilateral development banks, evaluates the effectiveness of funds-based adaptation finance, and assesses the challenges and shortcomings in the local delivery of adaptation finance.
Climate Finance Determinants, Integration, and Adaptation Strategies	Shawoo et al.(2022) ,Doku et al.(2021), Keweloh (2015), Anantharajah (2019), Sudmant et al.(2017), Samuwai, J. (2021)	The focus here is on understanding the determinants influencing climate finance allocation, integration of disaster risk reduction and climate change adaptation practices, and exploring adaptation strategies. Studies within this theme analyze country ownership dynamics, recipient characteristics in specific regions like Sub-Sahara Africa, and the governance complexities and barriers in implementing adaptation finance, particularly in Fiji

Thematic area		**Summary of analysis**
Carbon Intensity, Emissions Reduction, and Low-Carbon Investment	Li et al. (2023) ,Sudmant et al.(2017),Tunji-Olayeni et al.(2019)	This theme delves into carbon intensity factors, emissions reduction strategies, and opportunities for low-carbon investments. The research investigates sector-level carbon intensity in developing economies, explores low-carbon investment opportunities at the city-scale level, and highlights the significance of sustainable practices, green energy, and innovative designs in mitigating climate impacts.
Transparency, Reporting, and Societal Dynamics in Climate Finance	Oxfam. (2022),Omukuti et al.(2022),Keweloh, R. (2015)	The studies under this theme critically examine transparency, reliability, and reporting practices in climate finance. They scrutinize institutions like the World Bank and explore potential discrepancies, ambiguities, and inconsistencies in reporting methodologies. Additionally, the theme highlights racial and colonial dynamics within climate finance organizations, emphasizing the implications for resource allocation, colonization dynamics, and societal impacts

Equity in climate finance allocation

One of the most pressing concerns highlighted by (Xie et al., 2023)and (Samuwai, 2021) is the disproportionate allocation of climate finance between mitigation and adaptation. Despite developing countries, particularly Pacific Small Island Developing States (PSIDs), being more vulnerable to climate risks, the majority of multilateral development banks (MDBs) finance is tilted towards mitigation projects in wealthier countries.

Readiness and capacity constraints

A recurrent theme across the studies is the readiness gap among countries, especially between the Asian and Pacific sub-regions. Factors like policy frameworks, institutional capacity, and fiscal environments play pivotal roles in determining a country's readiness to access and effectively utilize climate finance. This highlights the need for tailored strategies that address specific regional and national contexts, as emphasized by (Curuki, 2019) and (Pannier et al., 2020).

Role of local institutions and stakeholder participation

There is crucial role of local institutions, NGOs, and communities in bridging the finance gap. Engaging local stakeholders not only enhances project effectiveness but also ensures that initiatives are contextually relevant and sustainable. Furthermore, the Green Climate Fund's (GCF) challenges in defining and engaging the 'local level' indicate a need for more inclusive and transparent processes (Bécault et al., 2016) and (Omukuti et al., 2022)

Political dynamics and governance

Political factors and governance structures significantly influence climate finance outcomes, as noted by (Shawoo et al., 2022) and (Doku et al., 2021). Addressing power dynamics, vested interests, and enhancing country ownership are imperative to foster collaboration and coordination among stakeholders. Sudmant et al., (2017) discuss further accentuate the importance of governance arrangements in harnessing cost-effective, low-carbon investment opportunities.

Reporting, transparency, and standardization

The lack of standardized reporting mechanisms, as highlighted by (Adaptation Watch, 2016) and (Oxfam International, 2022) , poses challenges in tracking, evaluating, and ensuring accountability in climate finance. Establishing clear accounting modalities, disclosure practices, and reporting frameworks is crucial to build trust, enhance transparency, and facilitate informed decision-making.

Integrating disaster risk reduction and climate change adaptation

The nexus between Disaster Risk Reduction (DRR) and Climate Change Adaptation (CCA) emerges as a critical area requiring attention. Keweloh (2015) underscores the conceptual confusion and inconsistencies in integrating DRR and CCA practices. Aligning policies, practices, and strategies between these domains can enhance synergies, optimize resources, and bolster resilience against climate-related hazards.

Attraction of the private investment in climate finance sustainability roadmap

Attraction of private investment in climate finance for sustainability roadmap is crucial today. The paper proposes a resource mobilization framework emphasizing sustained financing for pilot projects and targeted technology transfers. Without prioritizing domestic private sector engagement, Fiji's energy and sustainable development goals may remain elusive, risking real benefits to vulnerable communities and rendering the least developed countries ineffective

(Curuki, 2019).

During the process of preparing the paper the author's some limitations regarding evidence included in the review process. The search primarily focused on articles available on Google Scholar, which may have inadvertently excluded valuable research from other databases or regional publications. This could introduce a bias towards certain geographic areas or specific types of research. Similarly, by limiting the search to articles published between 2015 and 2023, the review might have missed out on earlier foundational studies or recent cutting-edge research that could provide valuable context or updates on the topic. Likewise, the review might be susceptible to publication bias, where only studies that have been published in academic journals are considered. Grey literature, reports, or working papers that could provide practical insights might have been excluded

Limitations of evidence included in review process

Similarly, the author has facing some of the limitations in review process as well. While Google Scholar is a valuable tool, relying solely on this database might not capture the full breadth of available literature. The absence of other databases or resources could limit the comprehensiveness of the review. The review might lack a rigorous quality assessment of the included studies, leading to potential biases or inaccuracies in the conclusions drawn from the evidence. Similarly, the review does not have involved consultation with experts in the field of climate finance in developing countries. Expert insights could provide additional context, validation, or nuances that might be missed through a purely literature-based approach.

Conclusions

The complexities and challenges surrounding climate finance, as evidenced by the diverse array of studies reviewed, necessitate urgent and concerted action at both global and local levels. The disproportionate allocation of funds, particularly favoring mitigation over adaptation in vulnerable regions, underscores the pressing need for equity in financial distribution.

Furthermore, the readiness disparities between regions, coupled with institutional and governance constraints, highlight the imperative for tailored strategies that accommodate diverse contexts and capacities. Local institutions, NGOs, and communities must be empowered and actively engaged to bridge existing gaps and foster sustainable climate resilience.

Transparency, accountability, and standardized reporting mechanisms emerge as critical pillars in enhancing trust, facilitating informed decision-making, and ensuring effective

utilization of climate finance. Addressing the conceptual and practical integration between Disaster Risk Reduction (DRR) and Climate Change Adaptation (CCA) is equally vital to optimize resources, enhance synergies, and bolster resilience against climate-induced hazards.

In essence, achieving equitable, effective, and resilient climate finance necessitates a multifaceted approach that prioritizes equity, inclusivity, transparency, and collaboration. By addressing the identified challenges and leveraging lessons learned from diverse contexts, stakeholders can collectively navigate the complexities of climate finance and advance towards a more sustainable and resilient future for all. To addressing the imbalance between mitigation and adaptation financing is paramount. Given that MDBs climate finance largely correlates with greenhouse gas emissions rather than vulnerability, there's a need to ensure that funds are directed more equitably based on vulnerability and readiness, especially towards developing and least developed countries.

Implementing a standardized and comprehensive readiness assessment across countries can help bridge the gap highlighted between Asian and Pacific sub-regions. By focusing on dimensions such as policies and institutions, knowledge management, and fiscal policy environment, countries can be better prepared to access and utilize climate finance effectively.

Encouraging private sector investments in climate adaptation projects, especially in regions like the Pacific SIDS where there's limited private sector involvement, can diversify funding sources. Governments should explore incentives, partnerships, and regulatory frameworks to attract private investments.

Given the limitations of public funding, leveraging the role of local institutions, and NGOs, becomes crucial. These entities can play a pivotal role in implementing and managing climate change-related projects, ensuring that funds are utilized effectively and reach the grassroots level.

Recognizing the contextual variations among countries, it's imperative to avoid a one-size-fits-all approach. Countries should conduct tailored assessments to determine the most suitable financial instruments, governance structures, and strategies based on their unique contexts, challenges, and priorities.

To address concerns about the effectiveness of Green Climate Fund (GCF) mobilization, there's a pressing need for enhanced transparency and standardized reporting mechanisms. Developing clear accounting modalities and standardized methodologies for tracking and reporting can rebuild trust among stakeholders and ensure funds are utilized as intended.

Addressing underlying political dynamics, power struggles, and vested interests is

essential. Countries should foster greater country ownership of climate finance initiatives while critically examining political influences. Strengthening governance structures and policies can ensure more efficient and equitable allocation and utilization of funds.

Emphasizing the integration of local and traditional knowledge with external resources can enhance the effectiveness and sustainability of climate change adaptation strategies. Recognizing and leveraging indigenous knowledge can offer valuable insights, promote community engagement, and ensure interventions resonate with local contexts.

Providing targeted capacity building, technical assistance, and training to countries, especially those with weaker institutional capacities, can enhance their ability to access, manage, and implement climate finance effectively. This includes developing skills in project design, monitoring, evaluation, and reporting.

Innovative Fiscal Policies exploring innovative fiscal policies, such as the proposed "natural disaster-resilient fiscal rule," can help small states achieve economic stability and fiscal sustainability amidst climate-related challenges. Adopting countercyclical fiscal policies and diversifying revenue sources can build resilience and mitigate risks associated with natural disasters and climate change.

References

AdaptationWatch. (2016). Toward transparency: The 2016 adaptation finance transparency gap report (2016). https://www.adaptationwatch.org/

Anantharajah, K. (2019). Governing climate finance in Fiji: Barriers, complexity and interconnectedness. *Sustainability*, *11*(12). https://doi.org/10.3390/SU11123414

Ayers, J. M., & Huq, S. (2009). The value of linking mitigation and adaptation: A case study of bangladesh. *Environmental Management*, *43*(5), 753–764. https://doi.org/10.1007/s00267-008-9223-2

Barbier, E. B., & Hochard, J. P. (2016). Does land degradation increase poverty in developing countries? *PLoS ONE*, *11*(5), 13–15. https://doi.org/10.1371/journal.pone.0152973

Bécault, E., Koenig, M., & Marx, A. (2016). Getting ready for climate finance: The case of Rwanda. Working Paper N° 13. Leuven Centre for Global Governance Studies, KU Leuven, Belgium

Brown, K., & Corbera, E. (2003). Exploring equity and sustainable development in the new carbon economy. *Climate Policy*, *3*(SUPPL 1). https://doi.org/10.1016/j.clipol.2003.10.004

Curuki, J. S. (2019). *Will the tide of climate finance finally turn in our favour? : three essays on accessing and mobilizing climate finance in Oceania post-Paris agreement.* The University of the South Pacific. 39–133.

Doku, I., Ncwadi, R., & Phiri, A. (2021). Determinants of climate finance: Analysis of recipient characteristics in Sub-Sahara Africa. *Cogent Economics and Finance*, *9*(1). https://doi.org/10.1080/23322039.2021.1964212

Garschagen, M., & Doshi, D. (2022). Does funds-based adaptation finance reach the most vulnerable countries? *Global Environmental Change*, *73*, 102450. https://doi.org/10.1016/j.gloenvcha.2021.102450

Keweloh, R. (2015). Integrating disaster risk reduction and climate change adaptation in theory and practice. A case study of the Red Cross and Red Crescent Movement in Asia. IFHV Working Paper, 5(3). https://doi.org/10.17176/20220622-140855-0

Li, F., Abuzar, M., Ali, S. A., Al-Hazmi, N. M., & Abbas, Q. (2023). A revaluation of carbon intensity factors through the carbon decomposition approach in a developing economy. *Economic Research-Einkonomska Istrazivanja* , *36*(2). https://doi.org/10.1080/1331677X.2022.2142829

Medina Hidalgo, D., Nunn, P. D., Beazley, H., Sovinasalevu, J. S., & Veitayaki, J. (2021). Climate change adaptation planning in remote contexts: insights from community-based natural resource management and rural development initiatives in the Pacific Islands. *Climate and Development*, *13*(10), 909–921. https://doi.org/10.1080/17565529.2020.1867046

Nakatani, R. (2021). Fiscal rules for natural disaster and climate change-prone small states. *Sustainability (Switzerland)*, *13*(6). https://doi.org/10.3390/su13063135

Omukuti, J., Barrett, S., White, P. C. L., Marchant, R., & Averchenkova, A. (2022). The green climate fund and its shortcomings in local delivery of adaptation finance. *Climate Policy*, *22*(9–10), 1225–1240. https://doi.org/10.1080/14693062.2022.2093152

Oxfam. (2022). *Unaccountable accounting: The World Bank's unreliable climate finance reporting*, p. 5. https://www.oxfam.org/en/research/unaccountable-accounting

Pannier, E., Vu, T. C., Espagne, E., Pulliat, G., & Nguyen, T. T. H. (2020). The three dialectics of adaptation finance in Vietnam. *Sustainability (Switzerland)*, *12*(18), 1–24. https://doi.org/10.3390/su12187691

Pati, D., & Lorusso, L. N. (2018). How to Write a Systematic Review of the Literature. *Health Environments Research and Design Journal*, *11*(1), 15–30. https://doi.

org/10.1177/1937586717747384

Pickering, J., Skovgaard, J., Kim, S., Roberts, J. T., Rossati, D., Stadelmann, M., & Reich, H. (2015). Acting on climate finance pledges: Inter-agency dynamics and relationships with aid in contributor states. *World Development*, *68*(1), 149–162. https://doi.org/10.1016/j.worlddev.2014.10.033

Regmi, B. R., & Bhandari, D. (2012). Climate Change Governance and Funding Dilemma in Nepal. TMC Academic Journal, 7(1), 40-55

Samuwai, J. (2021). Understanding the climate finance landscape and how to scale it up in Pacific small island developing states. *ESCAP WORKING PAPER SERIES September*.

Samuwai, J., & Hills, J. M. (2018). Assessing Climate Finance Readiness in the Asia -Pacific Region. *Sustainablility,10*(4), 1192. https://doi.org/10.3390/su10041192

Canales, N., Atteridge, A., & Sturesson, A. (2017). Climate finance for the Indian Ocean and African Small Island Developing States. *Stockholm Environment Institute, Working Paper 2017-11*. www.sei-international.org

Shawoo, Z., Dzebo, A., Funder, M., & Dupuy, K. (2022). Country ownership in climate finance coordination: a comparative assessment of Kenya and Zambia. *Climate Policy*, *22*(9–10), 1266–1280. https://doi.org/10.1080/14693062.2022.2098227

Steele, P. (2015, April). Development finance and climate finance: Achieving zero poverty and zero emissions. (Discussion Paper). https://doi.org/10.13140/RG.2.2.28202.38087

Sudmant, A. H., Gouldson, A., Colenbrander, S., Sullivan, R., McAnulla, F., & Kerr, N. (2017). Understanding the case for low-carbon investment through bottom-up assessments of city-scale opportunities. *Climate Policy*, *17*(3), 299–313. https://doi.org/10.1080/14693062.2015.1104498

Thwaites, J., & Manel Amerasinghe, N. (2018). New UN Assessment Delivers Good News on Climate Finance, But No Time for Complacency. *World Resources Institute* 2018. https://www.wri.org/blog/2018/11/new-un-assessment-delivers-good-news-climate-finance-no-time-complacency

Torvanger, A., Narbel, P., Pillay, K., & Clapp, C. (2016). Instruments to incentivize private climate finance for developing countries. *CICERO Report 2016,08*. http://www.cicero.uio.nohttp//www.cicero.uio.no

Tunji-Olayeni, P. F., Omuh, I. O., Afolabi, A. O., Ojelabi, R. A., & Eshofonie, E. E. (2019). Climate change mitigation and adaptation strategies for construction activities within planetary boundaries: Limitations of developing countries. *Journal of Physics:*

Conference Series, *1299*(1). https://doi.org/10.1088/1742-6596/1299/1/012006

UNECE - United Nations Economic Commission for Europe. (2010). Financing Global Climate Change Mitigation. *ECE Energy Series No. 37*, *37*, 193. http://www.unece.org/energy/se/pdfs/gee21/gee21_pub/GEE21_GlobalClimateChangeMitigation_ESE37.

Xie, L., Scholtens, B., & Homroy, S. (2023). Rebalancing climate finance: Analysing multilateral development banks' allocation practices. *Energy Research and Social Science*, *101*(2023), 103127. https://doi.org/10.1016/j.erss.2023.103127.