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The need for a climate-resilient development-aligned framing of innovative climate finance

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The increasing recognition of the importance of climate-resilient development (CRD) for developing countries is accompanied by a further recognition of the need for financial resources to meet the need for adaptation, mitigation and sustainable development in these countries. Innovative finance sources and mechanisms are therefore recommended as a solution for scaling up climate finance to meet CRD needs in developing countries. This review article examines the alignment between innovative climate finance and CRD. It argues that the operationalisation of innovative climate finance generates misalignments with CRD principles particularly relating to how the finance is sourced, governed and allocated. This fails to align with CRD principles of ensuring transformations and transitions, equity and justice and agency and empowerment. The review article proposes an expanded and CRD-aligned understanding of innovative climate finance that improves the governance of existing climate finance flows.

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Climate-resilient development and the need for innovative climate finance

Climate-resilient development (CRD), which refers to approaches that combine adaptation, mitigation and sustainable development goals [1,2], is central to climate action in developing countries. Developing country governments recognise the centrality of CRD (e.g. see Refs. [3–5]), while international development organisations note how support to these regions should be aligned with CRD objectives to achieve the Paris Agreement goals [6]. CRD has also been recommended as a pathway for developing countries' recovery from the effects of Covid-19 [7].

Within the climate governance space, innovative climate finance is considered key for achieving CRD. For example, the IPCC 6th Assessment report recognises that 'green' strategies of institutional investors are important for CRD and points out 'specialised financial instruments' such as 'green bonds' and 'carbon funds' as having been used to advance CRD [8]. The Green Climate Fund, which is the largest dedicated financial mechanism of the UNFCCC, also considers innovative instruments as essential for ensuring that developing countries can finance low-carbon CRD through 'debt-for-climate' instruments and the use of market-based structures that increase private sector investments into areas such as nature-based solutions [9]. Emerging academic literature also recognises that innovative financing mechanisms will be required to meet the CRD needs in developing countries [10].

The dependency of CRD on innovative finance raises important questions on the alignment between these two concepts. Specifically, it brings to the fore questions of how well the concept of innovative finance fits with the principles of CRD. This article presents a review of the concept of innovative climate finance against the principles underpinning CRD to understand the areas of misalignment between the two.

Defining innovative climate finance

Although reference to innovative finance for climate change mostly appears in policy literature (e.g. see Refs. [2,11,12]), a working definition of its meaning is still missing. However, this literature generally frames innovative climate finance as that which contributes towards addressing the climate finance gap through mechanisms that generate finance from the private sector for climate action [13]. Innovative financing mechanisms are therefore those that remove barriers to private sector investment in climate action [14,15] through approaches such as strengthening of regulatory frameworks for private sector investments and

development of investment-ready project pipelines [14], combined with the use of instruments such as green and sustainable loans and bonds, blended finance, carbon markets and debt for nature and climate swaps that reduce the amount of risk borne by investors in developing country regions (see Ref. [16] for a definition of these instruments).

This understanding of innovative finance has several implications for how it is operationalised. First, innovative financial mechanisms define success based on their capacity to leverage private sector investments [17,18]. For example, estimates show that trillion of dollars from institutional investors can be unlocked to support climate action [19]. Second, the investment barrier- and incentive-based framing of innovative climate finance means that action to mobilise this type of finance ultimately favours sectors that have the greatest potential for returns to investors such as renewable energy development, while those that have the greatest need for investment, such as in health and water and that are critical for adaptation and resilience in developing countries, are considered too risky for private investments as they are public goods with low rates of returns for investments [20,21]. The role of public finance in innovative financing mechanisms is therefore reduced to the elimination of barriers and reduction of risks for investors [22].

Basis of climate-resilient development and expectations from innovative finance

This article adopts the IPCC's 6th Assessment report working definition of CRD [23], which represents the latest consensus on the operationalisation of this concept. According to the IPCC, CRD is generally concerned with meeting the goals of sustainable development through protection of planetary health and human well-being through 'development trajectories that successfully integrate mitigation, adaptation and sustainable development' [8]. CRD is therefore characterised by transitions in sectors that determine climate change adaptation, mitigation and sustainable development, equity and justice considerations as well as multistakeholder engagement [23]. CRD generates action that prioritises people alongside technology and policy, based on contextual knowledge of interactions between different groups, technologies and policies while demonstrating an awareness of the distribution of costs and benefits of its actions [23,24,25].

Following the IPCC definition, CRD reflects three major principles. First is the principle of *system transformation and transitions*. CRD is achieved through societal, energy, food, and infrastructure system transitions, the speed and effectiveness of which are determined by the system transformations that are implemented [8]. Transformations, for example, through adoption of ecological restoration techniques, drive preferences for alternative systems of development and consumption alongside changes in power systems between actors [8], resulting in transitions in the 'energy, land and other ecosystems, urban infrastructure, industrial and social spaces' [24].

Second is the principle of *equity and justice*. CRD processes and outcomes are bound to have winners and losers [26]. CRD therefore promotes equitable and just processes and outcomes by ensuring that the needs of those who are most affected by climate change receive support for responses to climate change [10,27] and engages with stakeholders responsible for planning and implementing local development. Central to this is ensuring that the costs for responding to climate change are not disproportionately borne by those who are least responsible and most affected [27].

Third is the principle of *agency and empowerment* of all stakeholders, particularly those at the local level. As each stakeholder implements their own pathways to CRD that effectively contribute to a collective CRD outcome [8], there is need for a strong multistakeholder engagement to ensure that pathways adopted by one stakeholder do not negate those by another. Multistakeholder engagement promotes the agency and empowerment of different actors, particularly local actors who are most affected by decisions by other actors [8,28]. This requires understanding contextual power structures to create spaces for socio-economic and political transformations [29]. The effectiveness of multistakeholder engagement depends on the presence of enabling conditions, that is, capacity, technology and finance [8,25]. For example, stakeholders need these to experiment and identify and implement their desired CRD pathways [25].

To enable CRD, innovative climate finance should align with these principles (see Table 1). First, innovative finance mechanisms should provide resources to different stakeholders to enable them to implement individual and collective actions that generate the system transformationa dn transitions that are a conditional requirement for CRD. Second, innovative financing mechanisms should be guided by principles of equity and justice through ensuring that finance targets those who are most vulnerable to climate change risks and underperforming on sustainable development. Last, governance of this finance should be through mechanisms that enable target groups to determine how resources are used, which results in greater agency and empowerment.

Areas of misalignment between innovative finance and climate-resilient development

Innovative finance fails to contribute to the CRD principles in several ways (see Table 1). First is the failure of

Table 1

CRD principles, their expectations from innovative finance and ways of misalignment.

CRD principle	Expectations of innovative climate finance for CRD	How innovative climate finance fails to align with CRD principles
Promote system transformations and transitions	Generate finance that is targeted to all sectors that are key for adaptation, resilience and mitigation. Target finance to all levels, including the local level. Target addressing the root causes of vulnerability to and drivers of climate change.	Mostly allocates finance towards sectors with high potential for mitigation, with comparatively limited allocations towards adaptation sectors, which is insufficient for transitions.
Justice and equity	Enable finance to reach those who are most vulnerable to climate change. Maintain emphasis on the need for developed countries to meet climate finance commitments towards developing countries based on historical responsibility.	Emphasis on international private sector distracts attention away from developed countries' climate finance commitments. Emphasis on mitigation fails to adequately address the underlying causes of vulnerability that is essential for adaptation.
Agency and empowerment	Seek to advance the ownership of CRD pathways by countries and communities that are disproportionately affected by climate change and expected recipients of this finance. Target financing towards addressing the root causes of marginalisation, and support creation of spaces for deliberation and their inclusion in decision-making.	Emphasis on North–South and international private sector flows of finance and overlooks the contributions of national and local actors in financing and implementation of CRD.

innovative climate finance to align with CRD's principle on justice and equity emerging from how this finance is sourced. Innovative climate finance has a disproportionate emphasis on the international private sector as the key source of innovative climate finance. Policy discussions on innovative financing mechanisms also focus more on mobilisation of private sector finance with comparatively limited emphasis on the need for more ambitious flows of international public grant-based finance towards developing countries to account for developed countries' historical responsibilities in causing climate change [30], and which is a key feature of justice and equity. Hence, although the focus of innovative financing mechanisms is on enhancing North–South flows of finance [14], there are comparatively limited discussions on how North–South flows of international public finance can be enhanced to meet global targets. Additionally, the North–South centricity of private sector capital creates a high-level focus on the amount of finance mobilised and the type of international private sector targeted, resulting in processes and outcomes that only support international climate change policy goals without accounting for the local outcomes generated by these flows [31]. Last, innovative finance is delivered through complex structures that involve different providers and middle agents. These complex structures have limited transparency and prevent independent assessments of whether this funding achieves its stated goal [32].

Second is the misalignment between innovative finance and CRD's principle on ensuring system transitions and transformations emerging from the patterns of allocation of this finance. The priority by innovative finance mechanisms on de-risking of investments and generation of returns for investors limits the ability of this finance to equally target adaptation, mitigation and sustainable development [33]. For example, local governments are reported to experience challenges in attracting private sector investments, most of which are delivered through innovative financing mechanisms, into adaptation [34]. The comparatively limited attention to adaptation also curtails the potential for transformation, which is higher in adaptation interventions [35].

Third is the misalignment with CRD's priority on agency and empowerment emerging from how this finance is governed. By prioritising private sector investments and North–South flows of finance, the operationalisation of innovative finance for CRD generally overlooks the contributions of local institutions in generating finance for CRD [36]. Consequently, discussions on innovative financing miss other solutions that can emerge intra-nationally, and the role that intra-national stakeholders can play in advancing CRD. Agency and empowerment are further overlooked through the limited transparency on the operation and outcomes from these investments [37]. Ultimately, the public, particularly those who are most affected by climate change and climate action, have limited opportunities to assess the effectiveness of these mechanisms and hold decision-makers to account [38].

A climate-resilient development-aligned understanding of innovative finance

A realignment between the existing understanding of innovative finance and CRD is urgently needed to ensure that

this finance effectively contributes towards CRD, particularly in developing countries. A CRD-compatible understanding of innovative finance should ensure that finance results in actions that balance between adaptation and mitigation, demonstrate that it addresses the needs of stakeholders in developing countries and not detract attention away from commitments of public finance flows by developed to developing countries. This begins with a recognition that although the (international) private sector is essential to addressing climate change, innovative finance that is aligned with CRD should target actions that meaningfully engage all stakeholders (both public and private) [39]. Practically, a more CRD-aligned understanding of innovative climate finance recognises that innovative finance includes not only private sector finance that is provided through new instruments or technologies [40,41], but also processes that use already-existing mechanisms to address climate change [42,43].

This expanded understanding of innovative climate finance moves away from 'new' and 'private sector' as a basis for defining innovative finance and instead focuses on the governance of climate finance mechanisms as a lever for advancing innovative finance's contribution to CRD. This is through increasing the efficiency and effectiveness of existing finance mechanisms (both public and private) as requirements for stronger governance of climate finance at different levels [44], for example, through 'enabling decentralised forms of cooperation between stakeholders, and by fostering trust based on transparent, automated and standardised transactions' [45]. This also includes recognising the contribution of South–South flows of finance to advancing CRD in developing countries, for example, finance generated by developing country sub-national governments through intergovernmental fiscal transfers and local sources of revenue to support climate change adaptation [46], as opposed to solely considering North–South flows of finance as innovative. This understanding further recognises intra- and inter-state processes and outcomes of experimentation in the governance of climate change, which are important for advancing CRD [47]. Last, an understanding of innovative finance should not preclude the need to hold developed countries to account for their commitments to mobilise public and mostly grant-based finance to developing countries to address adaptation and resilience alongside mitigation goals.

Data Availability

No data were used for the research described in the article.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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The authors review the literature on the governance of climate finance for adaptation from 1990 to 2020 to determine the extent to which climate justice features in these. They find that climate justice is lacking in the governance of adaptation finance. Specifically, they find that the governance of adaptation finance is guided by neoliberal principles and the neglect of distributive justice concerns. They note a de-emphasis of public responsibility for financing climate change in favour of market and private sector responsibility, which limits transparency and accountability and ultimately climate justice.

31. •• Bracking S: **The anti-politics of climate finance: the creation and performativity of the green climate fund**. *Antipode* 2015, **47**:281-302.

The article uses a case study of the Green Climate Fund to outline how the design of international climate finance mechanisms creates a multiplicity of promises, objectives and contradictions which together act to cause two things. First is the underperformance of climate governance, exhibited through the under-delivery of international climate finance commitments. Second is the locking of Civil Society Organisations, which are considered essential observers to the actions of these mechanisms, into technical processes that exhaust the resources of these organisations. According to the authors, this makes it challenging for civil society organisations to adequately hold these finance mechanisms to account. The article attributes the non-perfomance of these climate finance mechanisms to regulatory capture by governments and corporations that represent private sector finance and that create trade-offs between the interest of developing and developed countries.

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