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COMMENTARY

The Climate Finance Imperatives for IPCC AR7

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1. INTRODUCTION

Finance is central to global climate action. Yet, the thorny issue of climate finance remains inadequately addressed by the Intergovernmental Panel on Climate Change (IPCC), even 35 years after the publication of the *First Assessment Report* (AR1) in 1990 (IPCC 1990). Indeed, climate finance received little attention across the first few assessment reports. AR1 touched upon the subject only lightly, in the chapter on "Response Strategies", under Working Group (WG) III: Mitigation. Subsequent assessments, such as the *Third Assessment Report* (AR3) (IPCC 2001) and the *Fourth Assessment Report* (AR4) in 2007 (IPCC 2007), did not include dedicated chapters on climate finance or investments. Instead, in both cases, the WGIII reports talked about mitigation technologies, policies, and emissions, with financial concerns addressed only tangentially.

The *Fifth Assessment Report* (AR5) was the first to have an entire chapter—Chapter 15—dedicated to "Investment & Finance", under WG III. The *Sixth Assessment Report* (AR6) continued this trend and deserves special mention for highlighting climate finance. First, it provided a strong empirical baseline for investment needs, mitigation pathways, global investment volumes, and systemic capital allocation trends. Second, it acknowledged the high capital costs faced by developing countries and the implications for transfers between the Global North and South. Third, it identified misalignments in global capital flows, including continued financing of fossil fuels, misleading perceptions of green investments (which can carry higher risks than traditional assets), the undervaluation of

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climate risks in financial portfolios, and inadequate policy and regulatory structures. Fourth, it recognized the insufficiency of public finance to bridge the financial chasm, thereby highlighting the role of private finance.

Despite these contributions, the AR6's treatment of climate finance remains far from adequate, especially from the perspective of developing economies. First, adaptation and loss and damage (L&D) finance have not been given the importance that they deserve—a drawback that is especially consequential given that the developing world is more adversely impacted by climate change and has lower adaptive capacity than the developed world. Second, the strong mitigation bias makes AR6 more aligned with the priorities of the Global North. Third, the focus on financial access, risk, and instruments is insufficient. Fourth, AR6 is silent on the reforms to institutional architecture and implementation pathways needed in the climate financing framework. In other words, while AR6 diagnosed the finance gap, it failed to prescribe mechanisms to bridge it.

2. THE IMPERATIVES FOR ADAPTATION FINANCE

AR6's bias in favour of mitigation finance—which tilts the discussion away from adaptation and L&D finance—arises from the IPCC's fundamental strength in the physical sciences and its relative weaknesses in the social science domains. Since physical scientists and climate scientists initially dominated the IPCC, early discussions primarily focused on how physical science and technological solutions could help reduce emissions and carbon accumulation in the atmosphere. Discussions on finance, consequently, also followed this trajectory.

The United Nations Environment Programme's recently published *Adaptation Gap Report 2025* (UNEP 2025) presents a stark reality: while developing countries will require US$ 310–365 billion annually for adaptation by 2035, adaptation finance flows were just US$ 26 billion in 2023. This implies that the finance requirements are 12–14 times higher than existing flows. This underfunding stems from multiple structural barriers. First, adaptation projects often lack a perceptible short-term return, making them unattractive per conventional return-on-investment (ROI) frameworks. Second, their public-goods characteristics—as they are non-rivalrous and non-excludable—limit the scope for user-fee recovery, deterring private capital. Third, the understanding of adaptation needs remains shallow, reducing empathy and prioritization among policymakers. Measures such as managed retreat are misinterpreted as adaptation failures rather than as forward-looking resilience decisions. Fourth, adaptation and development are frequently conflated. Infrastructure projects such as

embankments or bridges may enhance adaptive capacity, but they are classified as routine development, resulting in inadequate allocation for climate financing. Fifth, adaptation interventions require complex, multi-sectoral engagement across communities, cultures, labour markets, and political institutions. Finally, the absence of a standardized definition of 'adaptation' complicates measurement and reporting, impeding fund mobilization and tracking.

Adaptation finance, however, is driven by two powerful imperatives—one epistemic and the other ethical. The epistemological imperative is rooted in neoclassical welfare economics through the concept of the social cost of carbon (SCC). The SCC reflects the long-term economic and social damage associated with an additional tonne of carbon emitted, or conversely, the benefits gained when such emissions are avoided. While mitigation directly lowers emissions and hence reduces the SCC, adaptation does so indirectly by reducing society's exposure to climate-induced damage. Despite their economic significance, future losses arising from inadequate adaptation endeavours are routinely excluded from production, consumption, and investment decisions, resulting in adaptation being undervalued in the mainstream economic calculus.

The ethical imperative is grounded in justice. The Global South, which has historically contributed the least emissions, bears a disproportionate share of the climate risk. Adaptation thus becomes a matter of survival in the Global South, aimed at safeguarding communities, health systems, food security, infrastructure, and ecological assets.

3. LOSS AND DAMAGE (L&D) FINANCE

In contrast, L&D finance has emerged as a critical pillar of climate justice. For the Global South, the losses are not hypothetical future risks but lived realities caused by the historical follies of the Global North. Compensation, therefore, is a mechanism to restore the dignity of these nations, rebuild communities, and correct historic asymmetries wherein economies that contributed the least to emissions face the most severe impacts. Yet, current financing remains grossly inadequate and structurally weak. Contributions are voluntary instead of liability-based, definitions of L&D remain ambiguous, valuation methodologies are fragmented, and attribution science is insufficiently integrated into decision-making. Without clear criteria for responsibility, quantification, eligible losses, and distributive mechanisms, the L&D Fund risks under-delivery despite its moral urgency. Attaining equity and distributive justice remains an under-represented and under-discussed concern in AR6.

4. THE AR7: PROPOSALS AND EXPECTATIONS

The agreed outlines of the *Seventh Assessment Report* (AR7) (IPCC 2025), however, reflect a marked elevation in the treatment of finance—moving from the AR6's fragmented and mitigation-centric analysis to a more systemic framing of climate finance. For the first time, adaptation and L&D finance have been accorded space commensurate with their global urgency. The outline bifurcates the financial assessment across two chapters: Working Group II's (WGII's) Chapter 6 is dedicated to adaptation and L&D finance and examines adequacy, access, instruments, flows, methodologies, gender equity, and justice dimensions; meanwhile, WGIII's Chapter 7 addresses the scaling of mitigation finance, market design, institutional access barriers, and investment conditions for low-carbon transitions.

A second shift lies in the treatment of adaptation and L&D. The AR7 proposes certain mechanisms for adaptation finance. It commits space to costs, benefits, tracking methodologies, risk-transfer and insurance models, concessional and grant-based flows, and equity-based access frameworks for vulnerable populations, thereby positioning adaptation as a pillar of climate stability that stands equal to mitigation. The placement of L&D alongside adaptation signals that the global negotiation landscape has changed and that the Global South is exerting its agency.

The AR7 also demonstrates a higher degree of integrative thinking by embedding finance throughout the report—for example, in WGIII's Chapter 5 on enablers and barriers, in Chapter 6 on governance and cooperation, and in WGII's regional and thematic assessments across sectors. Its presence across workstreams creates opportunities to synthesize a comprehensive financial bibliography.

Despite these advances, AR7 risks inheriting a structural blind spot from AR6. The reform agenda for climate finance architecture remains untouched. AR7 still does not provide a dedicated analytical space for capital expansion by multilateral financial institutions (MFIs), reallocation of special drawing rights (SDRs), restructuring of sovereign debt, equalization of risk–premiums, reform of fossil-fuel subsidies, or alignment of global finance flows under Article 2.1(c) of the Paris Agreement (Segal 2023). Without system-level reform, scaling climate finance remains theoretical rather than actionable, given that MFIs driven by the Global North (such as the World Bank and the International Monetary Fund, IMF) maintain climate-finance portfolios heavily biased in favour of mitigation.

Another challenge lies in functional separation. While the inclusion of two finance chapters marks progress over AR6, the duality can reinforce rather

than resolve the separation of mitigation finance from adaptation and L&D finance. The world does not face two fragmented financing needs; it faces an interconnected capital-allocation problem.

More importantly, transition finance remains underdeveloped. Coal phase-out mechanisms, management of stranded assets, pension fund realignment, worker compensation frameworks, and capital allocation for the transition from fossil to renewable energy have been acknowledged but not prioritized. With 75% of global coal capacity located in Asia, the future of decarbonization hinges on transition finance, and this will need a separate architecture.

Finally, AR7 risks repeating the behavioural omission of AR6. Finance flows are shaped not only by economics but also by risk perception, political signalling, investor confidence, lobbying incentives, and behavioural finance biases.

Given these, AR7 must do four things. First, it should create an integrated financial framework that ensures synergy across working groups to map mitigation, adaptation, L&D, and transition finance simultaneously. Second, it should prioritize systemic reforms, including restructuring of sovereign debt, capital optimization, and a global fiscal realignment. Third, transition finance should be elevated from a footnote into the main architecture, enabling the creation of dedicated facilities for coal retirement, compensation schemes, and buy-out plans for stranded assets. Fourth, it is imperative to standardize financial measurement and disclosure protocols. This necessitates the development of specific tools for accounting, adaptation tracking, leverage ratios, and budget tagging in accordance with Article 9[1] of the Paris Agreement.

If AR7 embraces this mandate, it could become the first assessment cycle to transform finance from an analytical backdrop to a design mechanism.

Ethics Statement: This study complies with requirements of ethical approvals from the institutional ethics committee for the conduct of this research.

Data Availability Statement: The data used to support this research is available in a repository, and the hyperlinks and persistent identifiers (e.g. DOI or accession number) are stated in the paper.

[1] Article 9 of the Paris Agreement mandates the developed countries to provide financial resources to the developing and underdeveloped nations for climate change mitigation and adaptation. It emphasizes scaling up mobilized funds, balancing adaptation/mitigation support, and requires biennial reporting on projected financial assistance.

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