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Adaptation Finance: Turning Pledges into Investment



Sustainability Research Paper

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Adaptation finance helps communities and economies prepare for climate impacts and reduce the harm they cause. Yet funding remains far below estimated needs, even as rising temperatures, water scarcity and extreme weather place growing pressure on lives, livelihoods and infrastructure. This brief examines the widening financing gap, the effectiveness of international funding mechanisms and the potential for adaptation to become an investable asset class, with particular attention to opportunities for Gulf decision makers. How does adaptation finance differ from mitigation finance? Why are funding commitments failing to keep pace with growing needs? What will it take to turn pledges into investment that delivers lasting climate resilience?

SUSTAINABILITY RESEARCH PAPER

This research paper is part of a 12-month series published by the Al-Attiyah Foundation every year. Each in-depth research paper focuses on a current sustainability topic that is of interest to the Foundation's members and partners. The 12 technical papers are distributed to members, partners, and universities, as well as made available on the Foundation's website.



03 EXECUTIVE SUMMARY

- Developing countries' estimated adaptation finance needs are twelve to fourteen times current international public flows, yet adaptation's share of climate finance has fallen while headline totals have risen.
- Donor budgets have tightened. Several major bilateral donors are cutting aid-funded climate finance. The US has withdrawn from the Green Climate Fund and contributions to the Adaptation Fund almost halved between 2022 and 2024.
- Exposure is growing. Heat already costs hundreds of billions of potential working hours a year; disaster displacement remains high; and much of the infrastructure needed by 2050 has not yet been built.
- Development banks are a major public source of adaptation finance and are approaching their 2030 projection, but lending can add to the debts of countries already exposed to climate shocks.
- Investors have shown strong appetite for disaster risk through catastrophe bonds, and blended finance for adaptation more than doubled in 2025. Mobilising investment requires both suitable capital and a stronger pipeline of viable projects.
- Climate risk assessment faces important methodological and data gaps. A paper underpinning some central-bank scenario estimates has been retracted, while weather observations remain limited in many vulnerable countries.
- Disclosure requirements are spreading despite gaps in supporting data. Nineteen jurisdictions have ISSB-based requirements in force. In Qatar, firms within the scope of the Qatar Financial Centre's sustainability reporting rules must report for financial years beginning in 2026.
- Early warning systems, nature-based defences and heat action plans can deliver substantial benefits at relatively low cost, but coverage remains limited in many small island states and the poorest countries.
- Priorities include grants for preventive adaptation, pre-arranged disaster finance and funding for project preparation. First-loss capital can support suitable private investments. Policy milestones over the next eighteen months will test whether pledges translate into resources and measurable resilience.

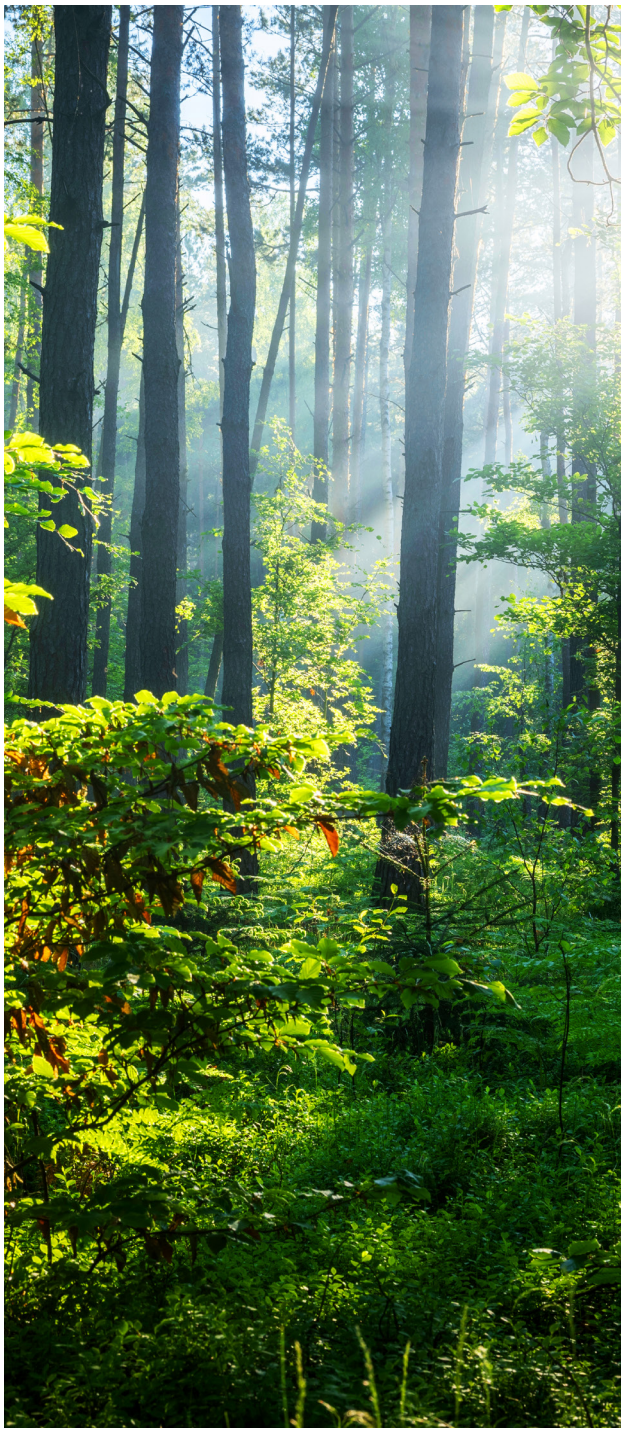


Adaptation finance supports measures that reduce harm from actual or expected climate impacts. It differs from mitigation finance, which reduces emissions or enhances carbon sinks. For investors, a central challenge is that many adaptation benefits are avoided losses and social gains rather than revenues, often accruing beyond the entity paying for them. Public sources therefore account for more than 90% of adaptation finance provided and mobilised by developed countries, while mobilised private finance remains limited.

The gap between developing countries' adaptation needs and international public finance remains substantial. Donor aid budgets are shrinking, and dedicated funds face resource constraints. The call at the 2025 United Nations Climate Change Conference (COP30) to triple adaptation finance by 2035 has no explicit baseline. The 2026 conference (COP31), in Antalya in November, offers an opportunity to clarify delivery and accountability. Meanwhile, the Green Climate Fund has opened a replenishment process for 2028–31.

Investors have shown willingness to assume disaster risk, yet investment-ready adaptation projects remain scarce. There is a strong case for grants to reduce vulnerability, complemented by pre-arranged finance that releases funds quickly after agreed triggers. Funding for project preparation can also help attract private investment where viable revenue models exist. For the Gulf, which faces climate risks and has substantial financial resources, these choices affect national resilience and its contribution to international climate cooperation. These instruments should be planned together so that short-term liquidity does not displace investment in long-term resilience.

This paper reviews the adaptation financing gap, donor commitments and the climate risks requiring action. It examines international funding mechanisms, the role and limits of private investment, and the quality of risk assessment and disclosure. Drawing on practical examples, it identifies opportunities for Gulf decision makers and the policy milestones that will test whether pledges become effective investment.



05 A WIDENING FINANCING GAP



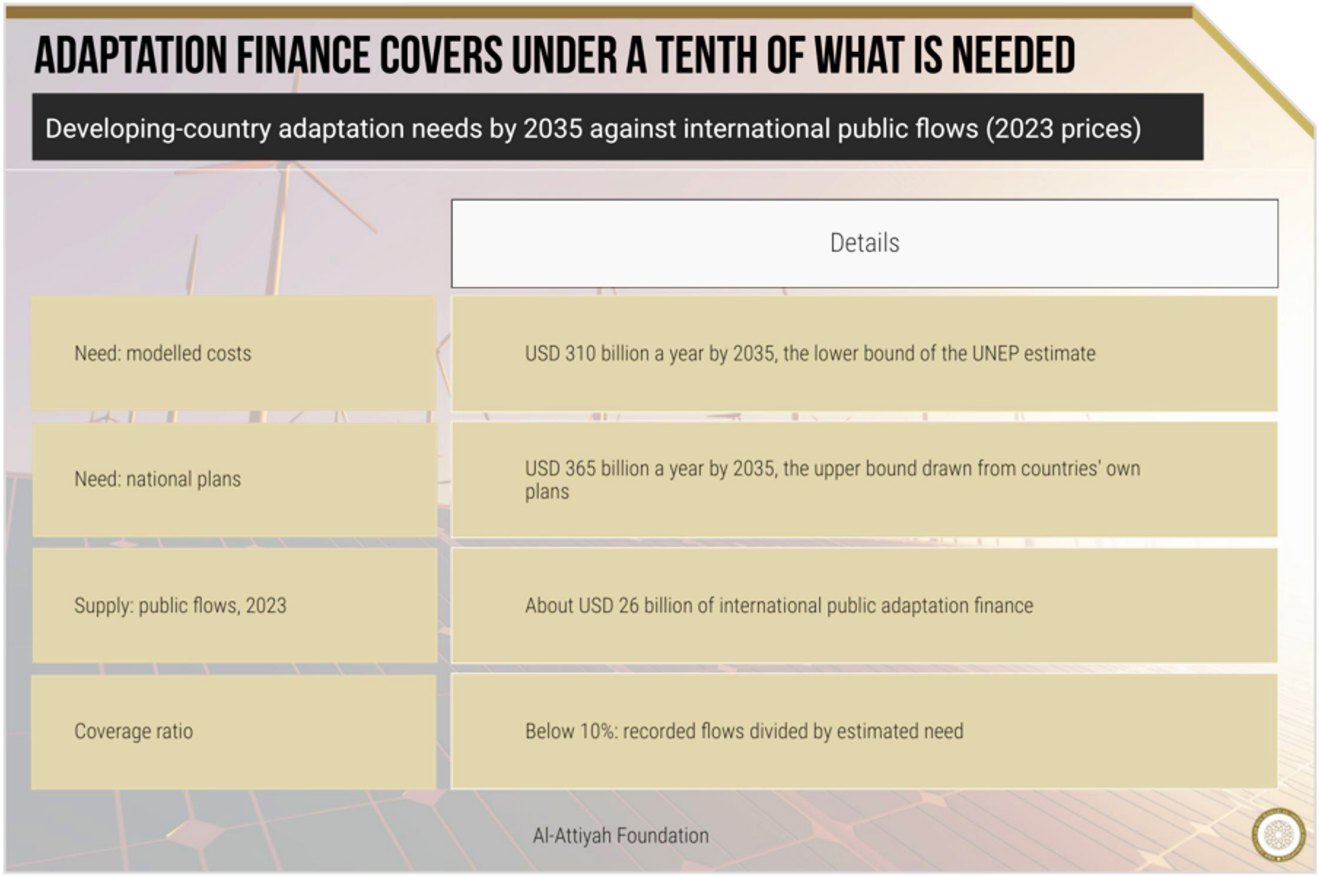
Adaptation needs in developing countries are estimated at USD 310–365 billion a year by 2035, in 2023 prices. The United Nations Environment Programme (UNEP) bases the lower estimate on modelled costs and the upper on national plans. International public flows were about USD 26 billion in 2023, equivalent to only 7–8% of estimated future needs. This comparison indicates the scale of the challenge, but excludes domestic spending and private investment and compares different years.[1]

Headline climate finance has grown while adaptation's share has declined. The Organisation for Economic Co-operation and Development (OECD) reported USD 136.7 billion provided and mobilised by developed countries in 2024. Adaptation accounted for about one-quarter, compared with one-third in 2020. Meeting the COP26 goal of doubling adaptation finance by 2025 required a further increase of more than USD 5 billion from 2024 levels.

Private climate finance mobilised reached USD 30.5 billion in 2024, mainly through development banks, while total support for low-income countries was USD 9.6 billion. For this paper, the priority is how much adaptation finance reaches vulnerable countries, on what terms and with what results.[2]

Donor budgets have tightened. The UK met its GBP 11.6 billion commitment for 2021/22–2025/26, but its June 2026 strategy indicates an aid-funded core budget of about GBP 2 billion a year, compared with an earlier annual average of about GBP 2.[3] billion. This accompanies a planned reduction in aid from 0.5% to 0.3% of gross national income. Headline climate finance can obscure changes in concessional support when grants are combined with loans, guarantees and export credits. These instruments differ in suitability for adaptation projects with limited revenues.

Figure 1: Adaptation Need Versus International Public Flows



The US withdrew from the Green Climate Fund in January 2026, further weakening the donor outlook.[3,4]

COP30 called for efforts to at least triple adaptation finance by 2035, building on the wider climate finance framework agreed at COP29. The call does not specify a baseline. Clarifying the reference year, scope and accounting method would make progress easier to assess at COP31 and beyond. A higher baseline implies a larger absolute target, while an unspecified baseline weakens accountability. Corporate adaptation targets require the same discipline: resilience spending commitments are meaningful only when their starting point, coverage and measurement method are clear.[5]

Uninsured disaster losses place pressure on households, businesses and public budgets. The World Bank estimated Hurricane Melissa's physical damage in Jamaica at USD 8.8 billion, about 41% of 2024 GDP.6 Insurance arranged through the Caribbean Catastrophe Risk Insurance Facility (CCRIF) paid USD 91.9 million within 14 days, equivalent to about 1% of estimated damage. The payment provided rapid liquidity, rather than full compensation. Speed and adequacy are separate challenges: parametric cover can accelerate payment, but its scale depends on premiums, policy limits and triggers, which may not match actual losses.[7] Cover should therefore form part of a broader strategy that combines risk reduction, reserves and access to recovery funding.



Heat, Water and Displacement

The Intergovernmental Panel on Climate Change (IPCC) provides a reference for assessing physical risks. Its 2021 assessment projected warming of 2.1–3.5°C in 2081–2100 relative to 1850–1900 under an intermediate emissions scenario, and sea-level rise of up to about one metre by 2100 under the highest scenario. Asset design must also consider local conditions and uncertainty.[8] In the Middle East and North Africa (MENA), water scarcity is a major constraint. World Bank modelling indicates demand exceeding renewable runoff across much of the region, encouraging desalination and groundwater extraction. Lenders should assess water stress alongside supply reliability, energy requirements and local climate hazards.[9]

Heat creates major health and productivity risks. The Lancet Countdown reported an average of 546,000 heat-related deaths a year during 2012–21 and 640 billion potential working hours lost in 2024, 98% above the 1990s average. These estimates indicate the scale of exposure but should not be interpreted as measured company-level losses. Firms with outdoor workforces should track heat exposure, lost working time and safety incidents together. For Gulf economies reliant on construction and logistics labour, these measures can inform worker protection, operating schedules and productivity planning.[10]

Qatar has established binding protections against occupational heat stress. Ministerial Decision No. 17 of 2021 prohibits work in exposed outdoor workplaces from 10:00 to 15:30 between 1 June and 15 September each year. The restriction applied during summer 2026. It gives contractors a clear basis for planning work schedules, alongside their wider responsibilities to assess heat risks and protect workers.[11]

The Internal Displacement Monitoring Centre recorded 29.9 million disaster displacements across 140 countries in 2025. This was 35% below the record 2024 total but 13% above the ten-year average; storms accounted for 17.9 million movements. These figures count displacements, not necessarily different people. The number of people still displaced by disasters at year-end rose 37% to 13.6 million. Long-term support needs can therefore grow even when annual movements decline. Planners should consider multi-year trends, local exposure and future hazards rather than relying on a single year.[12]

The Coalition for Disaster Resilient Infrastructure estimates that 60% of infrastructure needed by 2050 remains unbuilt and annual infrastructure losses reach USD 732–845 billion. Integrating resilience into design can reduce exposure over decades.[13] However, adaptation can also create environmental trade-offs. The International Energy Agency projects steep growth in desalination electricity demand to 2035, led by MENA. Energy-intensive water supply and cooling can increase emissions unless paired with efficiency and low-carbon power. Maladaptation also includes measures that transfer risk or worsen vulnerability. Investors should assess water and cooling assets against resilience, emissions and wider environmental criteria, including the requirements of the relevant green finance framework.[14]

International Funding Mechanisms

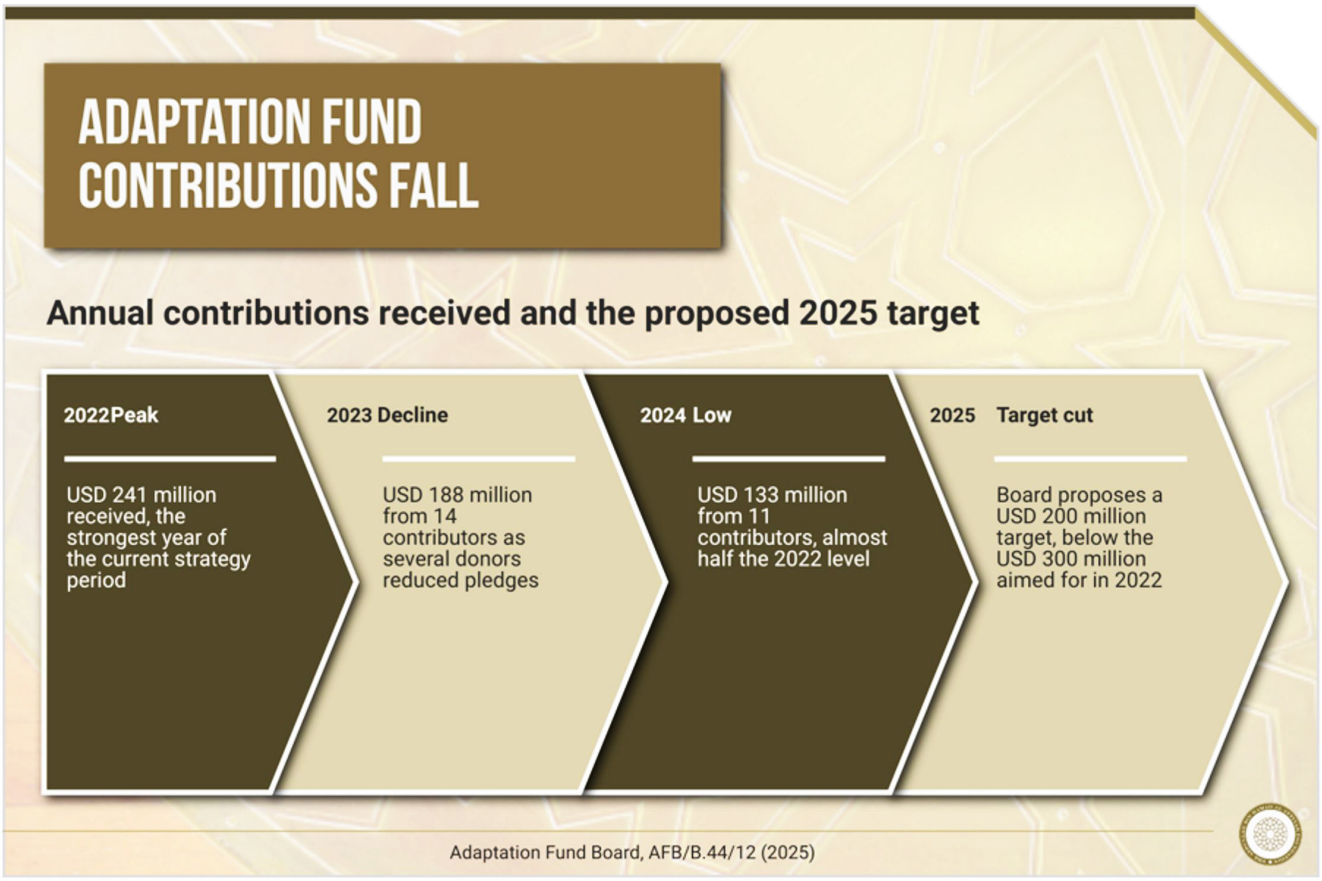
The Paris Agreement distinguishes between finance obligations and voluntary contributions. Article 9.1 requires developed-country Parties to provide financial resources for mitigation and adaptation; Article 9.2 encourages other Parties to contribute voluntarily. Gulf states are not subject to the developed-country finance obligation under Article 9.[1.]

Their voluntary contributions can support vulnerable countries and help shape effective partnerships. This distinction concerns financial support and does not remove their other obligations under the Agreement.[15]

The Adaptation Fund finances adaptation projects and programmes. Contributions declined from USD 241 million in 2022 to USD 188 million from 14 contributors in 2023, then to USD 133 million from 11 contributors in 2024.



Figure 2: Adaptation Fund Contributions, 2022-24



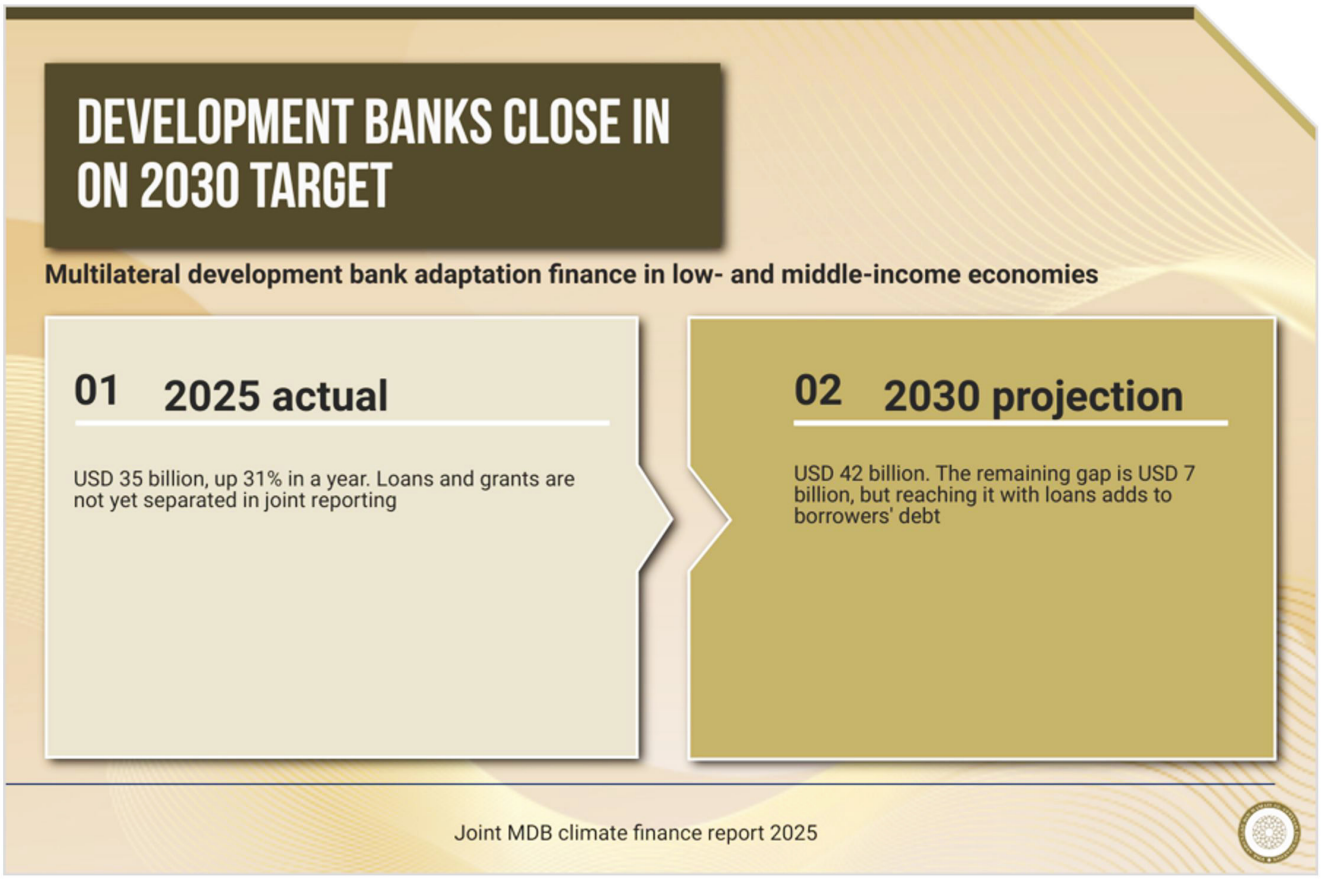
These historical figures show increasing pressure on resources. A narrower contributor base also raises concentration risk: the loss of a major donor could substantially reduce funding available for projects. Sustained, multi-year contributions would improve predictability.[16]

The Fund for responding to Loss and Damage supports responses to climate harm, complementing adaptation finance. On 22 October 2026, its board provisionally set aside USD 21.6 million for Nepal following an ice-and-rock avalanche and floods in August. This was reported as its first allocation for a specific disaster, with the request fast-tracked outside the normal submission period. The decision illustrates the potential for event-specific support.

However, a provisional allocation is not a disbursement, and its adequacy and speed should be assessed against documented needs and the timing of actual payments.[17]

The Green Climate Fund (GCF) has approved USD 20.3 billion across 358 projects. It targets a 50:50 balance between mitigation and adaptation over time in grant-equivalent terms, with at least half of adaptation funding directed to least developed countries, small island developing states and African states. Approvals are not disbursements: legal agreements and implementation conditions must be satisfied before funds are released. Monitoring should distinguish approvals, signed commitments and payments, and assess the time between them alongside project outcomes.[18]

Figure 3: Development Bank Adaptation Finance Against The 2030 Projection



Multilateral development banks (MDBs) are a major public source of adaptation finance. Their reported adaptation finance for low- and middle-income economies rose 31% to USD 35 billion in 2025, compared with USD 42 billion projected for 2030. The remaining difference is USD 7 billion, although reporting coverage must be consistent for this comparison. Financing terms matter as much as volume: grants and loans have different implications for debt sustainability. Assessments should identify grant shares, concessionality and repayment conditions, rather than treating every dollar committed as equivalent support.[19]

Climate finance reporting remains difficult to compare. Of the first 101 biennial transparency reports reviewed by the UN climate secretariat, 35 provided detailed information on bilateral support, averaging about USD 38.75 billion annually in 2021–22. These figures reflect reporting coverage and definitions and should not be treated as a complete global total. The next reporting cycle in 2026 offers an opportunity to improve consistency. Recipient safeguards and verification remain important; agreeing procedures in advance can help accelerate access without weakening accountability.[20]



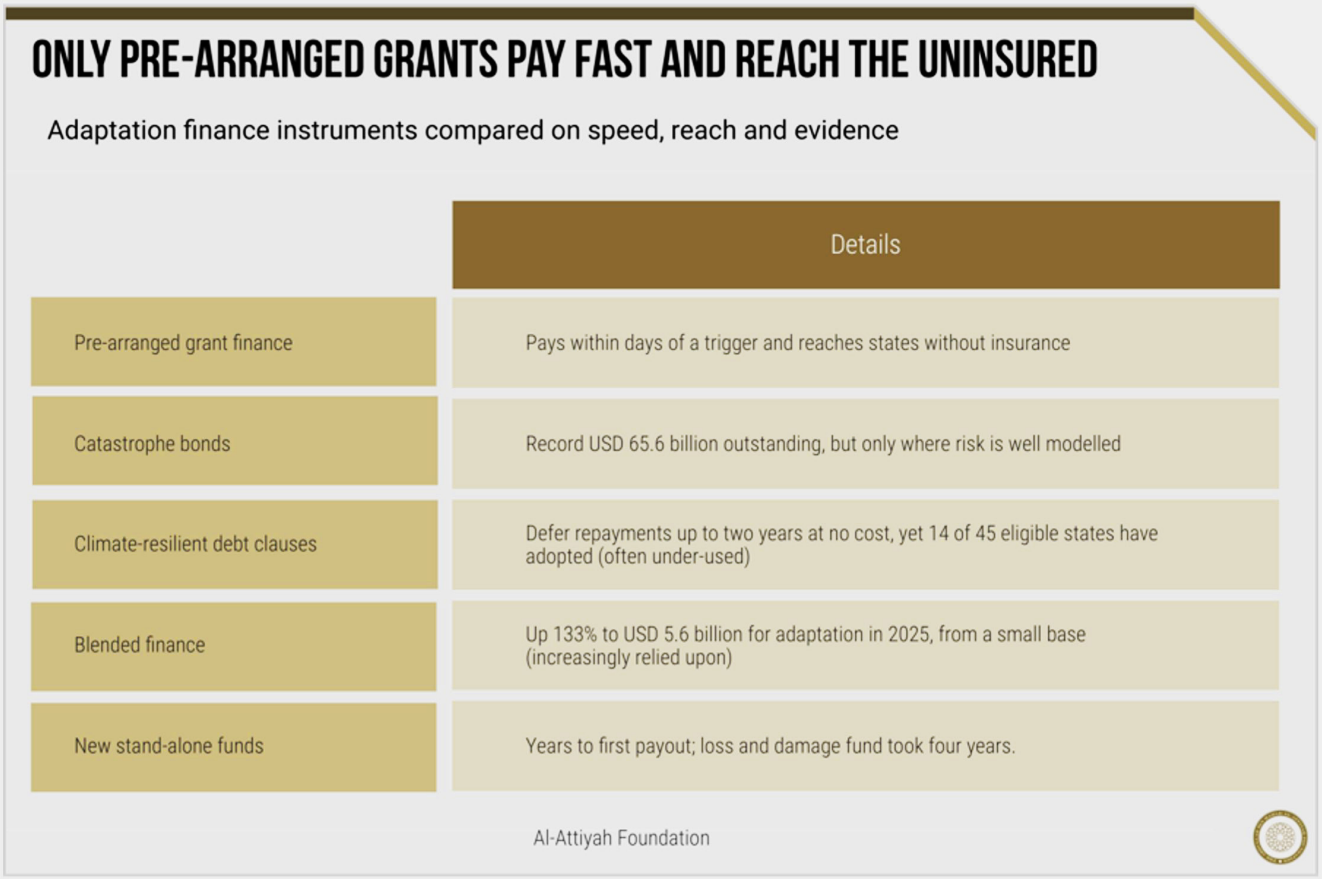
Investors have shown strong appetite for catastrophe bonds. These securities transfer defined disaster risks to capital markets: investors receive coupons but may lose some or all of their principal if agreed triggers are met, releasing funds to the sponsor. The market reached nearly USD 65.6 billion outstanding by 30 June 2026, after first-half issuance of almost USD 18 billion. This demonstrates demand for modelled disaster risk, rather than direct investment in preventive adaptation. Expanding coverage in developing countries also requires reliable risk data and affordable protection.[21]

The Qatar Central Bank's Third Financial Sector Strategy 2024–30 provides a framework for developing the insurance sector. Climate-related cover could support resilience if products are affordable and suited to local hazards. Broader insurance market volatility also highlights the importance of distinguishing climate risks from geopolitical and other exposures.[22]

Climate-resilient debt clauses can allow eligible borrowers to defer principal and interest for up to two years following specified disasters. In November 2024, the World Bank extended its clause to all natural disasters and pandemics without additional cost to eligible borrowers. At that time, 14 of 45 eligible countries had included it, and St Vincent and the Grenadines had activated it after Hurricane Beryl. These are historical uptake figures. Debt offices should assess eligibility and available terms: the clauses provide temporary liquidity, while repayment obligations remain.[23]

Blended finance uses public or philanthropic capital to improve risk allocation and attract private investors. Convergence reported in October 2026 that blended adaptation finance rose 133% to USD 5.6 billion in 2025, while the overall market was about USD 25.8 billion. This indicates rapid growth from a small base within the transactions tracked.

Figure 4: Adaptation Finance Instruments Compared



However, reported deal volumes are not necessarily amounts disbursed or private capital mobilised. Progress should also be measured by additional investment attracted and resilience benefits delivered.[24]

The World Resources Institute reviewed 320 adaptation investments worth USD 133 billion across 12 countries. It estimated more than USD 10 in benefits for every USD 1 invested over ten years, with average economic returns of 20–27%. These are largely avoided losses and wider social gains, not cash returns to investors. Translating benefits into investable revenue requires credible arrangements, such as public availability payments for maintaining an asset in service, or tariffs that cover resilience costs while protecting affordability.[25]

Adaptation is better understood as an investment objective spanning several asset classes and financing tools. Catastrophe bonds are tradable risk-transfer securities; debt clauses provide contractual payment flexibility; blended finance describes a financing structure. They perform different functions and should not be treated as interchangeable investments. Expanding private participation requires clear risks, credible counterparties and suitable revenue models, while grants remain essential for measures that generate public benefits without sufficient cash flows. A financing strategy should identify the intended beneficiaries, the source of repayment and the party bearing residual risk before selecting an instrument.



Risk Assessment and Disclosure

A significant input to some climate loss estimates has been challenged. On 3 December 2025, the Network for Greening the Financial System (NGFS) noted the retraction of the Nature paper underpinning the damage function used for chronic physical risks in its Phase V long-term scenarios. Criticisms concerned economic data and uncertainty estimates. NGFS scenarios are exploratory pathways, not forecasts, and outputs independent of that function remain unaffected. An updated methodology is planned for the end of 2026. Users should assess affected estimates cautiously and test alternative assumptions.[26]

UK supervisors have strengthened climate risk expectations. The Prudential Regulation Authority's supervisory statement SS5/25, published on 3 December 2025, replaces SS3/19 and covers governance, risk management, scenario analysis, data and disclosure. Firms were expected to complete a gap analysis and formulate remediation plans within six months. Its relevance to Gulf banks depends on their UK operations and regulatory status. For regulators elsewhere in the region, the statement offers a reference for strengthening supervision while accounting for local market conditions.[27]

Reporting under International Sustainability Standards Board (ISSB) standards is expanding. The IFRS Foundation reports that nearly 40 jurisdictions have taken steps towards adoption or use, with requirements in force in 19. These figures distinguish policy development from implementation, but do not establish that all regimes are equivalent. Investors should examine coverage, transition reliefs, assurance and enforcement before assuming that disclosures are comparable across jurisdictions.[28]

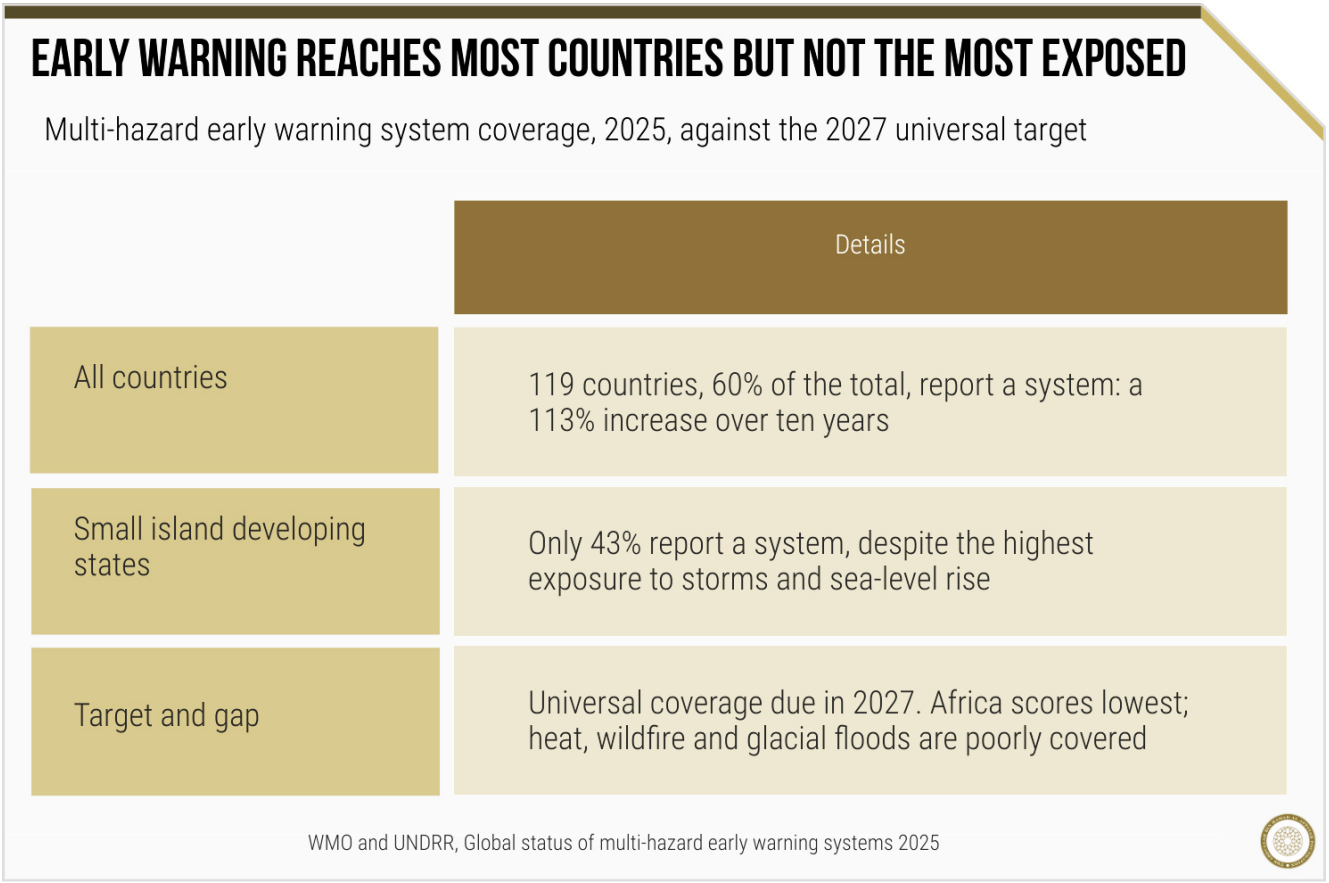
The Qatar Financial Centre Regulatory Authority (QFCRA) has introduced corporate sustainability reporting rules for firms within the prescribed scope. These require application of IFRS S1, covering sustainability-related financial disclosures, and IFRS S2, covering climate-related disclosures. They apply to financial years beginning on or after 1 January 2026, with first reports expected in 2027. The requirements should not be described as applying to all Qatari firms. For affected businesses, a practical challenge is obtaining reliable, locally relevant information on heat, flooding and other physical risks to their assets and operations.[29]

Risk models depend on the quality and coverage of weather observations. In the second quarter of 2026, only 25 World Meteorological Organization (WMO) Members met the Global Basic Observing Network standard overall. Sixty met the surface-station requirement and 30 the upper-air requirement, with reported shortfalls of 2,363 surface and 451 upper-air stations. Such gaps can weaken model validation, including for AI forecasts, especially in poorly observed regions. Financial institutions should assess local predictive performance rather than assume that global models are equally reliable everywhere.[30]

The EU AI Act requires appropriate human oversight of systems classified as high-risk. Article 14 provides for monitoring, interpretation, override and interruption. Amendments adopted in 2026 defer the relevant high-risk requirements to 2 December 2027 for stand-alone systems and 2 August 2028 for systems embedded in regulated products. These obligations do not automatically cover every use of AI in climate risk pricing. Insurers and lenders should assess the classification and territorial scope of their systems, while building in proportionate human oversight and model controls.[31]



Figure 5: Early Warning Coverage, All Countries and Small Island States



Evidence from Adaptation Practice

Early warning systems are a well-established adaptation measure. The WMO and the UN Office for Disaster Risk Reduction report that 119 countries, 60% of the total, have multi-hazard early warning systems, up 113% over ten years. Only 43% of small island developing states report coverage. Average scores for system completeness have improved by 45%, but Africa remains the lowest-scoring region. Extreme heat, wildfires and glacial lake floods present continuing gaps. The Early Warnings for All initiative targets universal protection by 2027. Funders should assess warning reach, timeliness and capacity to act, alongside system availability: a warning protects people only if they receive, understand and can respond to it.[32]

Nature-based defences can reduce coastal exposure, but performance depends on local conditions. A review of 69 field studies found average wave-height reductions of 70% for coral reefs and 31% for mangroves. For selected projects in Vietnam, mangrove restoration was three to five times less costly than submerged breakwaters under low-wave conditions. These findings should not be extrapolated to all sites or extreme storms. Coastal plans should assess ecosystem condition, available space and hazard intensity, combining natural and engineered measures where appropriate.[33]

Public health measures can also strengthen resilience. A peer-reviewed evaluation of Ahmedabad's heat action plan, combining warnings, public outreach and health-system preparedness, estimated about 1,190 deaths avoided annually in 2014–15.

The uncertainty interval was wide, so the estimated effect should be interpreted cautiously. The study supports further assessment of such plans, without establishing the same benefit in every setting. Gulf cities could adapt comparable measures to local conditions, with particular attention to outdoor workers and other vulnerable groups.[34]

Qatar has invested in water security infrastructure. Kahramaa, the national electricity and water utility, reported desalinated water production of 538 million imperial gallons a day in 2024 against demand of 420 million, a reported margin of about 28%. Production capacity is expected to reach 648 million imperial gallons a day after Facility E is commissioned in 2028. Its planned aquifer storage and recovery scheme would store desalinated water underground, targeting strategic storage sufficient for 90 days in extreme emergencies. Designs are under final review; this is planned rather than operational capacity.[35]

Corporate reporting can help track water efficiency. Microsoft reports that average water use effectiveness, measured in litres per kilowatt-hour of electricity, declined from 2.3 in its early-2000s datacentres to 0.27 in 2025. It separately reports a 25% reduction in water withdrawals per megawatt against a 2022 baseline, towards a 40% target by 2030. These metrics have different denominators and should not be conflated. Efficiency gains also need to be assessed alongside total withdrawals and local water stress; lower intensity alone does not establish reduced pressure on scarce supplies.[36]

Boards benefit from a consistent approach to assessing physical climate risks. ISO 14091:2021 provides guidelines for vulnerability, impacts and risk assessment for organisations of any size.

Used alongside IFRS S2 disclosures, it can support links between identified risks, investment decisions and performance measures. Common methods can improve comparability across subsidiaries and suppliers, but do not guarantee it. Assessments still require local data, transparent assumptions and appropriate assurance. Firms should adapt the framework to their circumstances and document material limitations.37 Comparable processes are useful only when decision makers can understand how differences in location, asset life and exposure affect the results.



Figure 6: Allocation Of Qatar's USD 2.5 Billion Sovereign Green Bond



Qatar has demonstrated capacity to raise and track sovereign green finance. The Ministry of Finance issued USD 2.5 billion in green bonds in May 2024. Its February 2026 impact report records allocations of USD 879 million for water and wastewater management, USD 621 million for climate change adaptation and USD 1 billion for clean transport. The adaptation allocation financed 43% of the relevant flood schemes' cost. Reported protection benefits must distinguish whole-project outcomes from the share attributed to bond financing.[38]

Countries in the region have contributed voluntarily to adaptation finance. In 2021, Qatar became the first non-Annex I Party to contribute to the Adaptation Fund, providing USD 500,000 through the Qatar Fund for Development. Non-Annex I refers to countries outside the UN climate convention's original Annex I grouping.

As traditional donor support comes under pressure, further voluntary contributions could strengthen adaptation funding while preserving the distinction between voluntary support and developed-country finance obligations.[39]

The region also supports climate action through development institutions. In December 2024, the Arab Coordination Group, an alliance of ten development institutions, pledged up to USD 10 billion by 2030 to address land degradation, desertification and drought. This builds on wider commitments, including USD 50 billion for Africa and USD 24 billion for climate action. These commitments differ in scope and should not be added together or treated wholly as adaptation finance without checking overlap, allocation and disbursement.[40]

Implementing the Baku to Belém Roadmap is a further priority. It supports the goal of mobilising at least USD 1.3 trillion annually for climate action in developing countries by 2035 from public and private sources. Gulf states occupy a distinctive position: they negotiate as developing countries within the Arab Group while also providing development finance. At COP31, this experience could support dialogue between finance providers and recipients, particularly on accessibility, concessionality and practical delivery.[41]

Adaptation faces both a funding gap and a shortage of projects capable of attracting private investment. Flood defences and water storage protect communities and economies but often generate limited direct income. Investors require credible repayment arrangements, while public authorities must identify who ultimately pays. Project preparation is therefore important, but cannot substitute for grants and affordable public finance where social benefits cannot be converted into revenues.[42]

Sukuk offer a potential regional financing channel. These Sharia-compliant certificates can fund eligible assets and activities through contractual structures. Fitch Ratings reports that ESG sukuk issuance rose by more than 60% to USD 18.5 billion in 2025, with USD 58 billion outstanding, and forecasts over USD 70 billion outstanding by end-2026. Adaptation could broaden their use beyond established green sectors. However, an underlying asset alone does not ensure viable repayments: flood defences and water storage still require credible payment arrangements, suitable credit support and clear allocation of risks.[43]

Gulf institutions could prioritise project preparation and carefully targeted first-loss capital. A first-loss position absorbs initial losses, reducing risks for other investors.

Such support should mobilise additional investment without creating open-ended public liabilities. Existing funds may provide suitable channels, while any new vehicle should demonstrate a clear unmet need. Success should be measured through projects reaching financial close, additional capital mobilised and verified resilience benefits, rather than the size of pledges alone. Any public risk-taking should be transparent, subject to due diligence and proportionate to the expected benefits for vulnerable communities.



At COP30, Parties adopted 59 Belém Adaptation Indicators to support assessment of progress towards the global goal on adaptation. These provide a common reference rather than a fully operational measurement system. Reporting can inform the global stocktake, the five-yearly assessment of collective progress. The two-year Belém–Addis Vision on Adaptation supports operationalisation, including further work on methods and data. Countries can contribute by testing relevant indicators and building reporting capacity. Finance decisions should also reflect local priorities and avoid imposing reporting burdens that exclude countries with limited capacity.[44]

The Adaptation Fund's transition to serving the Paris Agreement exclusively remains an important institutional milestone. Existing decisions link that transition to the availability of the share of proceeds from Article 6.4 activities. Arrangements for implementation and the Fund's fifth review require attention to the latest negotiating texts and decisions. Carbon-market proceeds could diversify income, but their timing and scale remain uncertain. Predictable voluntary contributions will therefore continue to be important for maintaining the Fund's ability to approve and deliver projects.[45]

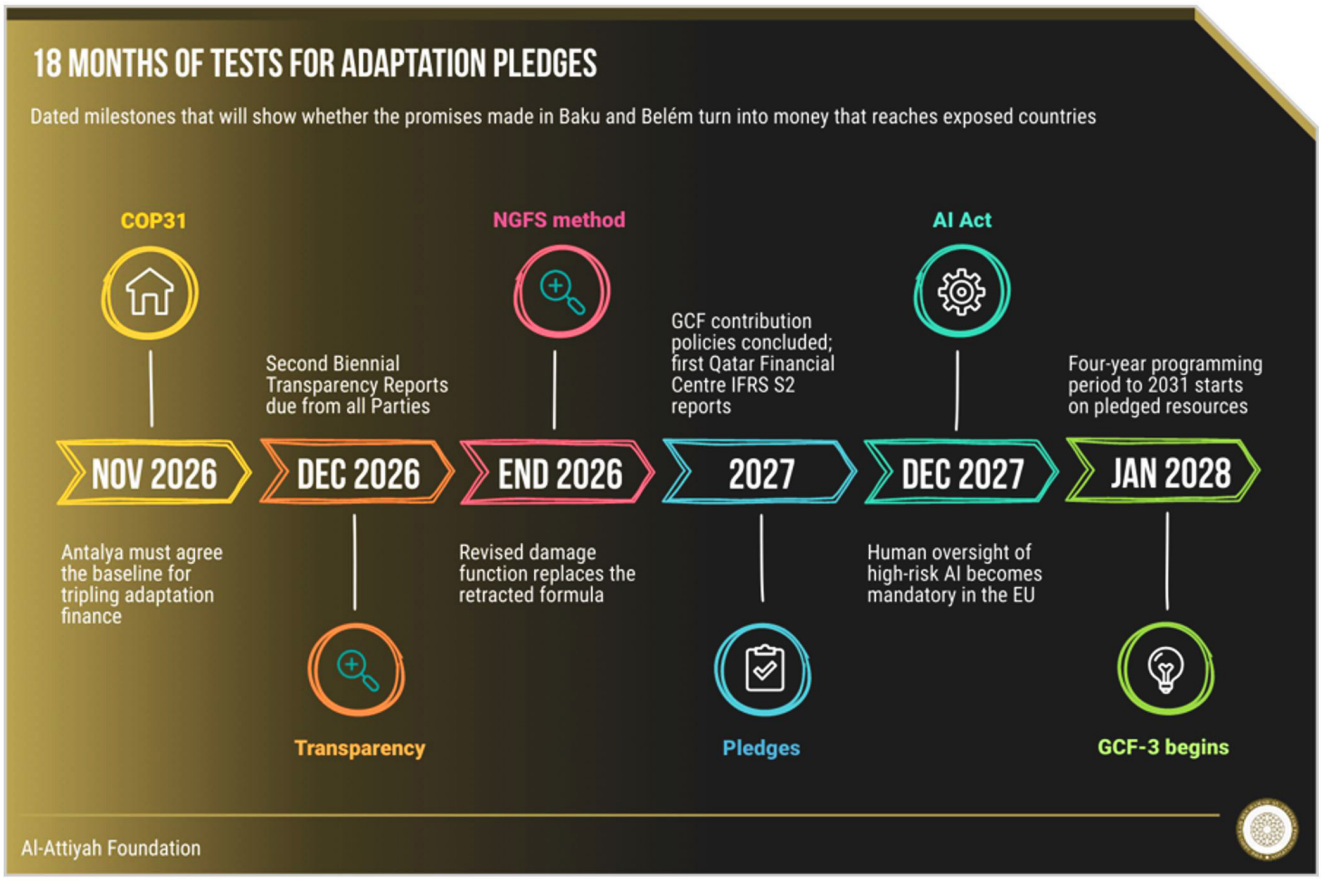
The GCF launched its third replenishment process in July 2026 for the period January 2028–December 2031. Decision B.45/18 requires consideration of contribution policies by the 47th Board meeting in 2027 and an updated strategic plan by the second meeting that year. These are distinct milestones, rather than a single deadline for concluding replenishment. Pledges and their conversion into usable resources will shape the Fund's capacity over four years. Following US withdrawal, securing sustained support from existing and potential contributors is especially important.[46]

Other milestones include COP31 in Antalya on 9–20 November 2026, an opportunity to advance clarity on adaptation finance. Second biennial transparency reports are due by 31 December 2026 for most Parties, while least developed countries and small island developing states have reporting discretion. Firms within the QFCRA reporting scope are expected to issue their first reports in 2027. The MDBs' 2030 adaptation finance projection provides a longer-term benchmark. Together, these milestones will help assess whether commitments translate into accessible resources and resilience outcomes.

A practical priority is to combine preventive adaptation grants with pre-arranged disaster finance. Grants support measures that reduce vulnerability before hazards occur; trigger-based funding can provide rapid liquidity when they do.



Figure 7: Forward Policy Deadlines



Source: Relevant UNFCCC, COP31 host, QFCRA and Green Climate Fund publications cited in this paper

Insurance and contingent credit serve different purposes and have different costs. Private mobilisation can complement public resources where credible revenue models exist, while stronger use of established funds may reduce fragmentation. The appropriate financing mix depends on risk, debt capacity and the needs of exposed communities. Clear eligibility rules and delivery arrangements should be established in advance so that finance reaches intended recipients when it is needed.

Priority actions for decision makers include the following:

- Chief financial officers should strengthen physical risk assessment, drawing on ISO 14091, and prepare IFRS S2 disclosures where applicable for the 2026 financial year.
- Vulnerable states should assess pre-arranged disaster finance and climate-resilient debt clauses where eligible, alongside investments that reduce exposure before the 2027 hazard seasons.
- Gulf sovereign wealth and development funds should assess project preparation and targeted first-loss support, with clear investment criteria and measurable resilience outcomes.
- Negotiators should advance the Adaptation Fund's transition and Article 6.4 revenue arrangements, and support ambitious, deliverable GCF replenishment commitments.

21 CONCLUSION

Developing countries' adaptation needs far exceed current international public flows, while donor budgets face increasing pressure. Capital markets can help transfer disaster risks and finance viable resilience projects, but cannot fund every public benefit. Decision makers should combine grants for preventive adaptation with pre-arranged disaster finance and support for project preparation. The objective is to reduce vulnerability and provide timely resources when shocks occur, using instruments suited to local needs and debt capacity.

These choices require careful use of evidence. The retracted paper affects specific NGFS physical risk estimates, rather than invalidating climate risk assessment as a whole. Gaps in weather observations also constrain model validation in many vulnerable countries. Transparent assumptions, alternative scenarios and investment in local data are therefore essential for credible decisions.

For the Gulf, the opportunity combines financial capacity with practical experience. Qatar's sovereign green bonds demonstrate investment in water management and flood protection. Regional institutions can build on this through project preparation, concessional support and carefully structured private investment. Early warnings, heat protection and appropriate disaster finance can support households and workers, provided measures are accessible, locally suitable and evaluated for effectiveness. Regional experience can also inform cooperation with other water-stressed and heat-exposed countries, while recognising differences in institutional capacity and available fiscal resources.

COP31, the GCF replenishment and the Adaptation Fund's evolving revenue arrangements will test delivery. Progress should be judged by resources reaching vulnerable countries, financing terms and measurable reductions in risk.

Private capital has an important role where credible repayment models exist; predictable public and grant-based finance will remain indispensable for adaptation benefits that markets cannot adequately fund.



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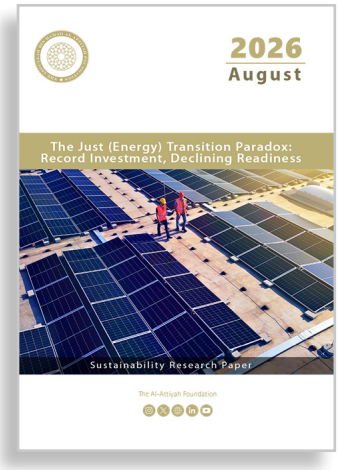
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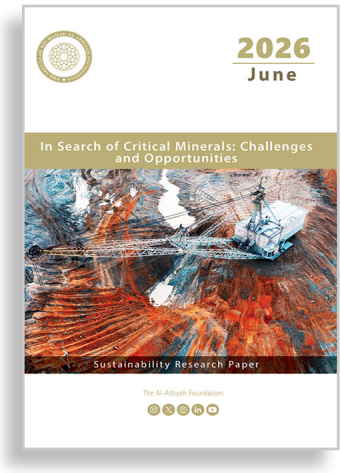
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The Al-Attiyah Foundation

Tel: +(974) 4042 8000,
Fax: +(974) 4042 8099
www.abhafoundation.org

Barzan Tower, 4th Floor, West Bay.
PO Box 1916 Doha, Qatar
Thealattiyahfoundation

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