



WHITE PAPER

Climate Adaptation and Resilience Financing

A more than \$100 billion-a-year opportunity for banks worldwide

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1. Executive Summary

Physical climate risks are increasingly affecting corporate operations, asset integrity, and supply chains across multiple regions. Extreme weather events are further driving operational interruptions and pushing up both operating and capital costs. The intensity of these events is accelerating; in 2024 alone, natural disasters generated an estimated \$320 billion in damages globally—20% more than in 2023.

Corporations across sectors are facing an urgent need to strengthen their resilience. But traditional financial adaptation measures, particularly NatCat¹ insurance, are proving insufficient and will become increasingly expensive. As a result, resilience will be increasingly built at the source through physical, capital-expenditures-based adaptation measures. Global adaptation and resilience investment, however, remains far below what is needed, especially in emerging markets, where funding needs exceed current inflows by a factor of 12 to 14.

Our analysis indicates that, to protect assets and operations, corporate investment in A&R measures will reach \$800 billion to \$1.2 trillion per year between 2026 and 2030. This surge in corporate spending will create a \$100 billion to \$130 billion annual financing opportunity for banks: a new, fully incremental pool of demand, driven by climate-related capex programs.

The window for banks to position themselves is narrow. Early movers will gain disproportionate share by building credibility with clients, shaping emerging standards, and developing differentiated offerings. To capture this market, banks must strengthen three capabilities:

1. Granular asset-by-asset understanding of physical risks for each client across the portfolio
2. Targeted outreach approach to engage clients effectively
3. Systematized go-to-market approach with clear products and decision-making processes

Current trends suggest that near-term engagement could influence banks' ability to participate effectively in this market. Corporate A&R spending will accelerate sharply in the coming years, and banks that engage early will secure a lasting advantage, creating new growth opportunities while helping build a more resilient global economy.

1. Natural catastrophe.

2. Understanding A&R needs and financing

Physical climate risks are intensifying rapidly as extreme weather events increase in frequency, duration, and destructive power. These risks stem from a combination of acute hazards—such as floods, storms, and wildfires—and chronic hazards, including heat stress, drought, and sea-level rise (see **Exhibit 2.1**). Their impact on corporations manifests through multiple channels: direct damage to physical assets, operational disruptions, and supply chain breakdowns. These effects translate into higher operating costs, elevated capital expenditure needs, and significant revenue losses, including business interruption (see **Exhibit 2.2**). In short, physical risk is increasingly a combined P&L and balance sheet risk.

The acceleration is unmistakable: as **Exhibit 2.3** shows, the intensity of several hazards has multiplied tenfold compared to just 50 years ago. Economic losses are already material: in 2024 alone, natural disasters generated an estimated \$320 billion in losses globally—approximately 20% more than in 2023. Events that were once considered “extreme stress tests”—with return periods of 1-in-100 years under a high-emissions RCP 8.5—now occur regularly.² Corporations are consistently using RCP 8.5 not as a worst-case scenario, but as the baseline for forward-looking risk assessments.

Recent events illustrate this shift. The 2024 floods in Rio Grande do Sul, the southernmost state in Brazil, correspond to an estimated 100- to 250-year return period in the current climate.³ The floods in Italy’s Emilia-Romagna region in 2023 reached approximately 500-year severity,⁴ while the 2024 floods in the Valencia region in Spain have been assessed at up to 2,000-year intensity.⁵ These are no longer statistical outliers—they are becoming part of the operating reality for corporations worldwide.

How corporations can cope with rising physical climate risks

To withstand worsening climate conditions, corporations must invest in adaptation and resilience. A&R represents the set of financial and strategic measures required to ensure that assets, operations, and supply chains remain functional in the face of extreme weather events.

A key dimension is financial adaptation, particularly through insurance products that can cushion potential losses. But traditional NatCat insurance is increasingly insufficient. Coverage remains limited for hazards outside the “catastrophe” definition, including heat waves and droughts. Even where insurance exists,⁶ operational losses and business interruption—often seven to 12 times larger than direct damage—are frequently excluded. At the same time, insurers are both reducing their exposure in high-risk regions and repricing upward as climate risks worsen, thus rendering coverage more expensive and, in some areas, effectively unavailable.

2. A 100-year return period indicates a 1% chance of occurring in any year. Intergovernmental Panel on Climate Change climate scenarios—known as Representative Concentration Pathways (RCPs)—outline alternative emissions and warming pathways. RCP 8.5 reflects a high-emissions trajectory used to assess severe physical risks.
3. Ben Clarke et al., *Climate Change, El Niño and Infrastructure Failures Behind Massive Floods in Southern Brazil*, Centre for Environmental Policy, June 3, 2024.
4. Enrico Scoccimarro et al., “A Cul-de-Sac Effect Makes Emilia-Romagna More Prone to Floods in a Changing Climate,” *Scientific Reports* 15, 2025.
5. Félix Francés, *Flood Risk Estimation and the October 2024 Flash Flood in the South of Valencia (Spain)*, Universitat Politècnica de València, 2024.
6. Key examples include Belgium, Denmark, and Norway (European Insurance and Occupational Pensions Authority, “Dashboard on Insurance Protection Gap for Natural Catastrophes”).

EXHIBIT 2.1

Hazards captured in the climate physical risk model used to assess sectoral vulnerability and exposure at the country level¹

Key Hazards¹



¹Mostly acute physical risks. “Floods” includes both inland and coastal flooding from sea-level rise.

EXHIBIT 2.2

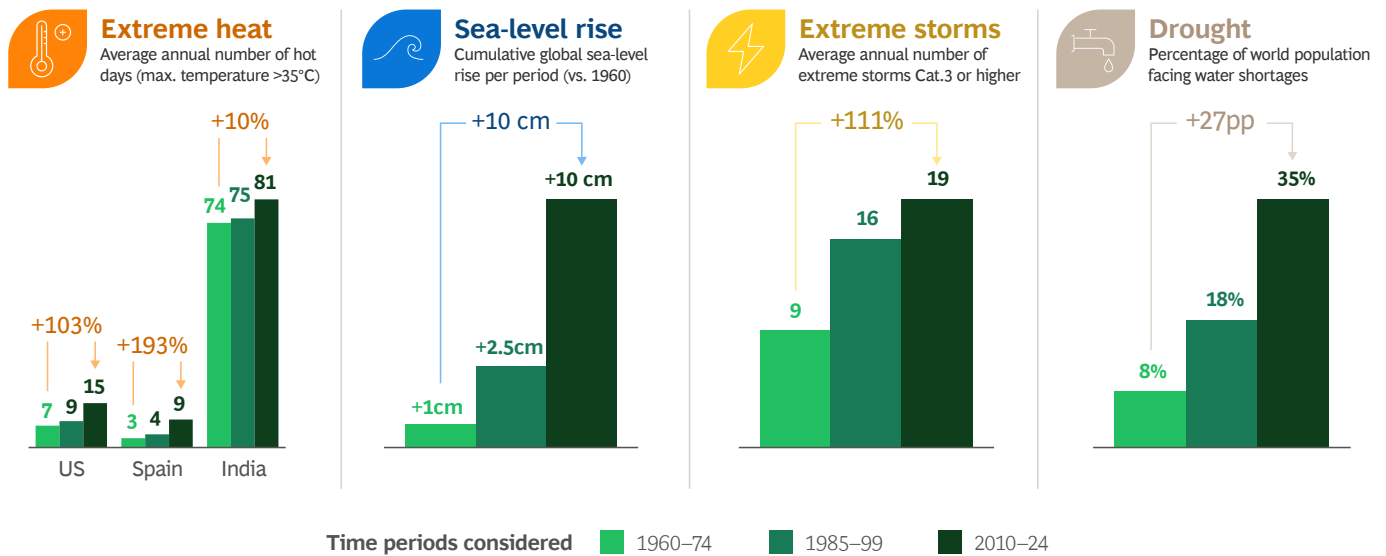
Key financial impacts of climate physical risks on corporations

	Financial entry affected	Asset	Operations	Supply chain
Cash flow	Capex	Cost of rebuilding the asset		
	Lost revenue	Revenue loss due to asset restoration	Lost revenue due to impact on productivity (e.g., slower operation at high temperature)	Lost revenue due to customer impact Loss of turnover due to shortage of raw materials
P&L	Opex	Exceptional operating costs (e.g., increased cooling costs due to extreme temperatures)	Recurring increase in operating costs (e.g., permanent increase in annual cooling costs due to temperature increase)	Price increase due to impact on key suppliers

Source: BCG analysis.

EXHIBIT 2.3

Recorded evolution of selected climate-related acute and chronic events



Sources: World Bank (extreme heat); European Environment Agency (sea-level rise); National Oceanic and Atmospheric Administration and STORM dataset, Bloemendaal et al. (2020) (extreme storms); Kummur et al. "Is physical water scarcity a new phenomenon? Global assessment of water shortage over the last two millennia. *Environmental Research Letters*, 5(3), 034006" (2010) and World Meteorological Organization (drought); Physical Risk and Resilience in Value Chains: CEO Handbook on Executive Engagement, World Business Council for Sustainable Development and BCG (2024).

For these reasons, physical, capex-based adaptation measures such as those described in **Exhibit 2.4** are indispensable. Reinforcing assets at the source, through hardening, retrofits, or protective systems, not only enhances resilience but can also reduce NatCat premiums over time. These interventions ensure that resilience is structurally embedded rather than dependent solely on financial risk transfer.

Corporate A&R spending has been on the rise. Between 2020 and 2023, the number of companies that measure the impact of climate risks increased fourfold, whereas investments to address them more than doubled on a like-for-like basis.⁷ Governments are accelerating too: the number of countries with national adaptation plans has increased by more than 50% in the past decade.⁸ Despite this progress, A&R investment remains far below what is required. In developing markets alone, funding needs are estimated to be 12 to 14 times larger than current inflows.⁹

Corporations recognize that the cost of underinvesting is rising quickly, and the adaptation gap is becoming economically untenable. This realization is pushing A&R higher on board agendas across regions and sectors.






7. Emmanuel Austruy et al., *Adaptation & Resilience of Companies in the Face of Climate Change*, BCG and Quantis, March 2025.

8. Alexandre Magnan et al., *Adaptation Gap Report 2025: Running on Empty*, United Nations Environment Programme, 2025.

9. María del Pilar Bueno Rubial et al., *Adaptation Gap Report 2024: Come Hell and High Water*, United Nations Environment Programme, 2024.

EXHIBIT 2.4

Illustrative capex-based A&R measures across industries

Physical Risks	A&R Measure	
	Structural	Incremental
 Wind	<ul style="list-style-type: none"> Structural reinforcement of roofs, walls, and plant supports Installation of wind-resistant shutters or impact-resistant glazing 	<ul style="list-style-type: none"> Fixing and shielding of lightweight roofs, skylights, and mobile panels Anchoring of external equipment (e.g., HVAC units, storage tanks)
 Floods	<ul style="list-style-type: none"> Fixed or mobile barriers and floodgates Elevation of critical equipment (e.g., switchboards, servers, pumps) 	<ul style="list-style-type: none"> Strengthened drainage capacity (e.g., permeable pavements, retention basins) Deployment of intelligent flood detection systems
 Wildfires	<ul style="list-style-type: none"> Fire-resistant cladding, roofing materials, or sealed openings Creation of defensible zones and natural firebreaks 	<ul style="list-style-type: none"> Upgrades of existing suppression systems (e.g., fire extinguishers, sprinklers) Application of fire-retardant coatings on structures or exposed assets
 Heat waves	<ul style="list-style-type: none"> Installation of wet zones or evaporative cooling areas in high-exposure sites Improved ventilation systems in enclosed spaces using louvers or external deflectors 	<ul style="list-style-type: none"> Thermal insulation with reflective or high-albedo materials HVAC upgrades with automatic temperature/humidity regulation
 Hail	<ul style="list-style-type: none"> Reinforced hail-resistant roofing for warehouses, production lines, and technical rooms Fixed canopies for exposed loading/unloading areas 	<ul style="list-style-type: none"> Hail nets or rigid protective shields for outdoor equipment and parked fleets

Source: BCG analysis.

3. A&R investment projected to surge

Global corporate A&R investment set to reach up to \$1.2 trillion per year by 2030

Corporate A&R investment is entering a phase of rapid acceleration. As climate disruptions intensify and disclosure requirements expand, companies are embedding physical risk management into capital expenditure planning more systematically. To quantify the scale of this shift, we applied a bottom-up analytical methodology combining corporate disclosures, sectoral gross value added, and geospatial exposure to climate hazards.¹⁰

Our analysis suggests that corporations globally will invest \$800 billion to \$1.2 trillion per year over 2026–30 to strengthen asset resilience and safeguard operations from physical climate risks. This represents a significant structural change in investment patterns, with resilience increasingly treated as a nonnegotiable component of long-term value creation.

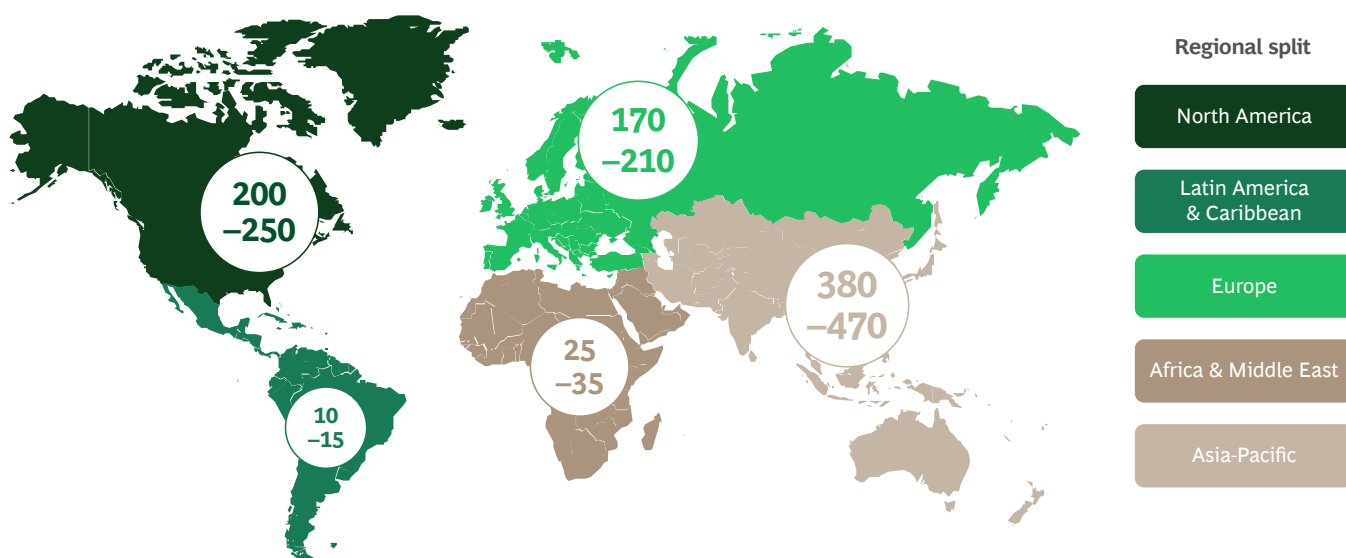
As **Exhibit 3.1** shows, much of this investment will come from Asia-Pacific, which will contribute nearly half of global spending. The region’s high hazard exposure—combined with extensive infrastructure, fast-growing manufacturing hubs, and accelerating regulatory action—makes it the natural epicenter of global adaptation efforts. Europe and North America are expected to contribute roughly one-quarter each; European corporations, however, will invest less overall due to lower hazard intensity and higher existing protection levels.

The upcoming investment wave will be concentrated in asset-heavy, capex-intensive sectors (see **Exhibit 3.2**). Transportation infrastructure operators will lead with more than \$300 billion per year, as they upgrade and climate-proof roads, rail networks, ports, and airports. Utilities, real estate, and diversified industrial corporations will follow, driven by their reliance on weather-sensitive assets and the need to safeguard continuity of service. In the consumer economy, hotels, leisure companies, and large retail networks are expected to invest close to \$100 billion annually, reflecting the importance of protecting widespread physical footprints and logistics chains.

EXHIBIT 3.1

Yearly A&R spending by corporations across regions over 2026–30 (\$B)

Yearly A&R spending from corporates across regions over 2026–30 (\$B)

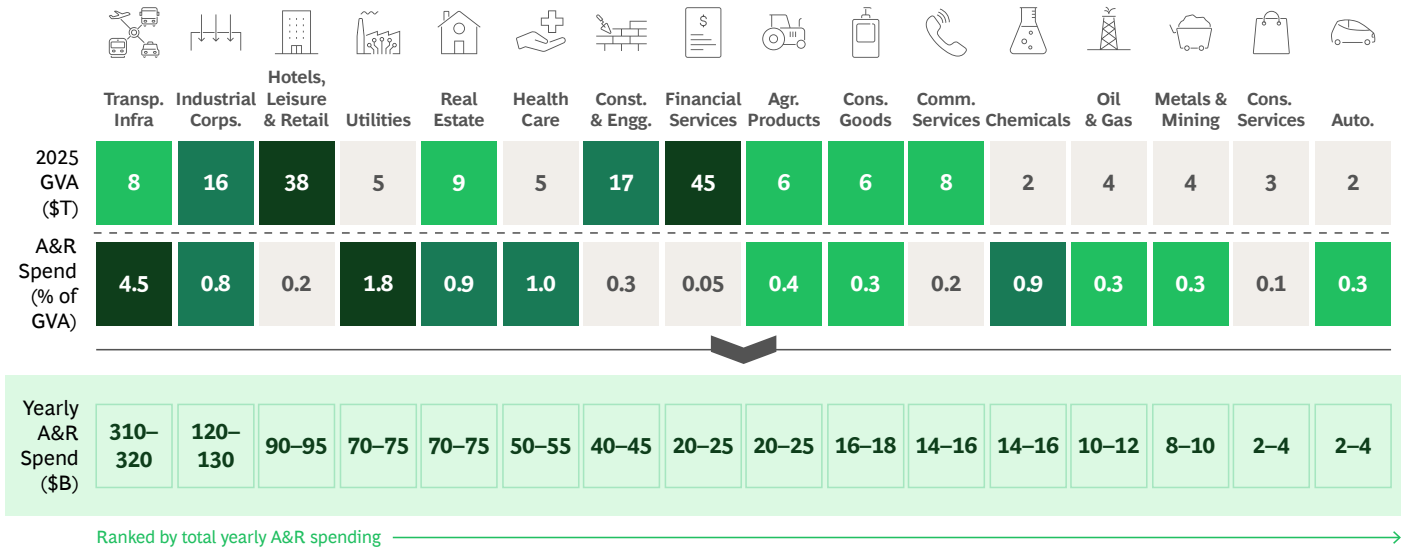


Sources: CDP 2023 corporate disclosures; Oxford Economics; BCG analysis.

10. Methodological details available in appendix.

EXHIBIT 3.2

2025 sectoral GVA and estimated annual corporate A&R spending for 2026–30, shown as a share of GVA and in absolute values



Sources: CDP 2023 corporate disclosures; Oxford Economics; BCG analysis.

Floods and wildfires as main A&R investment priorities

The cross-regional analysis presented in **Exhibit 3.3** shows that two hazards—floods and wildfires—are the primary drivers of expected physical risk impacts globally.

Flooding remains the most widespread and damaging hazard. It is particularly acute in Asia-Pacific, which accounts for approximately 50% of projected global A&R spending. It also ranks among the top risks in Europe and North America, where dense industrial and urban areas often lie in high-exposure river and coastal zones.

Wildfires have become the second most pervasive hazard, especially in North America, Southern Europe, and Latin America. Increased heat stress and prolonged droughts have transformed wildfire risk into a structural challenge for corporations operating in exposed geographies and across dispersed asset bases.

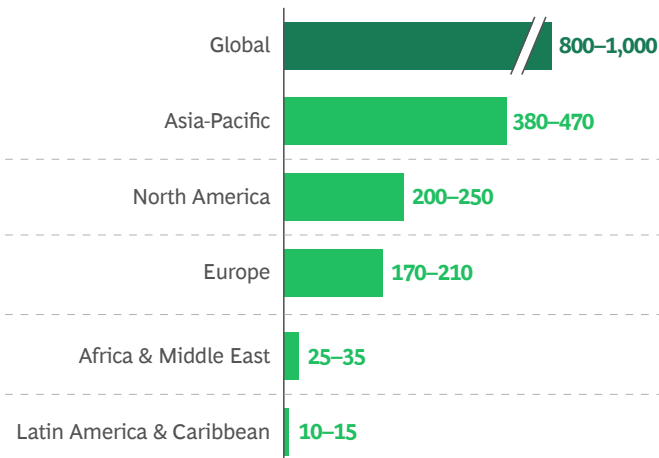
Other hazards remain region-specific, but are becoming increasingly significant:

- Extreme winds—including cyclones and typhoons—are increasingly affecting coastal and tropical economies, particularly across North and Latin America.
- Extreme precipitation represents a broad but moderate risk, especially in Asia-Pacific and Latin America, where rapid urbanization meets limited drainage infrastructure.
- Heat waves are highly localized but materially disruptive in Africa and the Middle East, where rising temperatures already strain infrastructure and productivity.

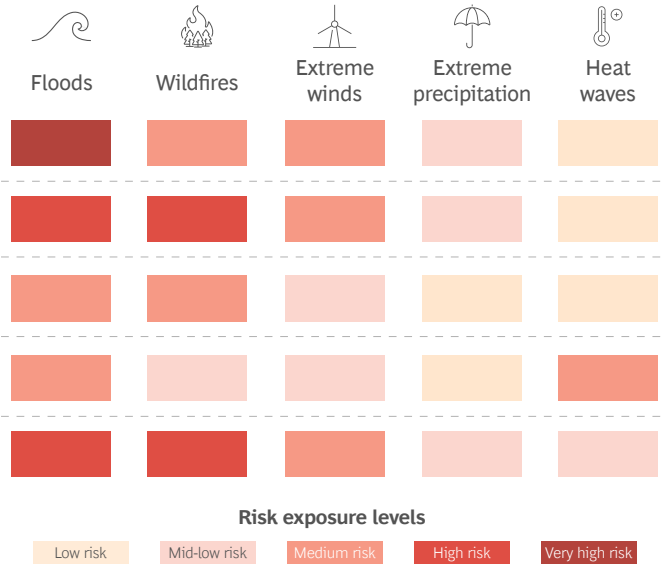
EXHIBIT 3.3

Regional mapping of predominant hazards

Yearly A&R spending by region (\$B)



Key climate hazards by region



Sources: CDP 2023 corporate disclosures; Oxford Economics; OS-Climate; BCG analysis.

Hazard exposure varies sharply by industry. Sectors with diverse physical asset portfolios, such as transportation infrastructure and utilities, face the broadest risk spectrum, as assets range from bridges and tunnels to substations and pipelines. Conversely, sectors with more-homogeneous asset bases tend to experience narrower but deeper exposure to specific hazards.

These differences reinforce the need for localized, asset-specific adaptation strategies rather than a uniform or global approach.

Emerging markets to drive the next phase of A&R spending growth

Looking ahead to 2031 and 2035, the geography of A&R investment will broaden further. Lower- and middle-income countries, which are recurrently underinvesting relative to their physical risk exposure, are expected to scale up significantly. Two forces will drive this shift: a natural increase in capital capacity, as developing economies grow and corporate balance sheets strengthen, and a reactive acceleration, triggered by local climate events of greater severity and frequency. Past disasters show that large-scale extreme weather events often catalyze major changes in resilience spending.

Brazil illustrates this dynamic clearly: the 2021 drought pushed hydropower reservoirs levels to their lowest in 90 years and triggered an energy crisis,¹¹ prompting a surge in private investment to diversify the energy mix and reduce climate vulnerability. In parallel, the 2021–22 floods, which caused more than \$3.1 billion in damages,¹² exposed weaknesses in critical transport infrastructure and catalyzed the launch of the \$1.66 billion Pro-Rodovias (Pro-Roads)¹⁴ program endorsed by the World Bank to climate-proof federal highways through elevated roadbeds, drainage upgrades, and flood-resilient engineering.¹³

11. Ministry of Mines and Energy of Brazil, clarification note “The farce of the water crisis in the electricity sector”, MME press office, July 7, 2021.

12. Jose A. Marengo et al., “Heavy Rainfall Associated with Floods in Southeastern Brazil in November–December 2021,” *Natural Hazards* 116, 2023.

13. World Bank, “World Bank Endorses Major Infrastructure Initiative to Boost Road management in Bahia, Brazil,” press release, September 10, 2024.

This pattern is expected to repeat as impacts intensify.

In this next phase, global A&R investment could reach a steady state of approximately \$1.35 trillion per year by the early 2030s.

This phase of growth will be uneven:

- Africa and the Middle East will record the strongest acceleration, driven by higher hazard intensity and rapidly rising resilience needs.
- Asia-Pacific will remain a major growth engine as economies scale and exposures worsen.
- Latin America and the Caribbean will expand from a smaller baseline but show meaningful upward momentum.
- North America will continue growing at around the global average.
- Europe, already relatively advanced in A&R deployment, will see limited incremental increases.

Across regions, emerging markets will contribute a disproportionate share of A&R spending during the 2030s.

EXHIBIT 3.4

Percentage growth in annual A&R spending from the first five-year period (2026–30) to the following five-year period (2031–35), by region



¹For example, in Africa and the Middle East, corporations are expected to spend on average 19% more per year on A&R in 2031–35 than they will in 2026–30.

4. A \$100 billion to \$130 billion a year financing opportunity for banks

As corporations scale their resilience investments, a growing share of A&R spending will rely on external financing. Today, funding comes from a mix of internal resources, equity and bond markets, government grants, development finance institutions, and commercial bank lending. Leveraging World Bank benchmarks on corporate capital structures,¹⁴ approximately 15% of total corporate investment is typically financed through bank loans. Applying this share to projected A&R spending yields a \$100 billion to \$130 billion annual financing opportunity for commercial banks over 2026–30 (see Exhibit 4.1).

Crucially, this volume is entirely incremental. A&R financing is not cannibalizing existing credit lines; it represents a new category of investment triggered by physical climate risks. As corporations develop and implement adaptation strategies, demand for external financing will grow in parallel—particularly among firms with multiyear resilience capex programs.

Bank participation, however, varies widely across markets. In mature financial systems, such as France and Italy, banks finance up to 40% of corporate investment. In credit-scarce environments—such as Nigeria and Pakistan—this share can drop below 2%. These disparities highlight that the A&R financing opportunity is not only about scale but also about access to credit: the resilience needs are global, but the availability of commercial financing is uneven.

Over time, these structural differences should narrow. As economies develop, banking penetration typically increases, credit systems deepen, and firms gain better access to external funding. In parallel, major local climate events tend to heighten awareness and accelerate demand for financing. Banks that build capabilities early—and position themselves as trusted partners—will be best placed to capture long-term growth, especially in emerging markets where the acceleration will be strongest.

EXHIBIT 4.1

Regional A&R financing opportunity overview

Geography	Yearly A&R spend (\$B)	Bankable share (%)	A&R financing (\$B)
1 Asia-Pacific	380 – 470	10	38 – 46
2 North America	200 – 250	1	23 – 28
3 Europe	170 – 210	23	40 – 48
4 Africa & Middle East	25 – 35	7	2 – 3
5 Latin America & Caribbean	10 – 15	17	1 – 2
Total	800 – 1,000	x 13%	= 100 – 130

A Asia-Pacific shows the highest estimated A&R spending, twice that of Europe

B Financing between Europe and Asia-Pacific is comparable due to different bankable share

C North America has higher A&R spend than Europe, but lower financing opportunity for banks due to lower bankable share

Sources: CDP 2023 corporate disclosures; Oxford Economics; OS-Climate; BCG analysis.

14. World Bank, *Enterprise Surveys – Investment Financing*, 2025

What banks will finance: primarily hard adaptation capex

Most bankable A&R investments will consist of hard capital expenditure: physical, tangible upgrades that reinforce existing assets against climate hazards. These include the following:

- Structural reinforcement of buildings and infrastructure
- Retrofits and upgrades of vulnerable components
- Installation of protective systems, such as flood barriers, drainage retrofits, and cooling equipment
- Backup and redundancy solutions, such as auxiliary power systems

In asset-heavy sectors—such as utilities and transportation infrastructure—these investments often take the form of large-scale, multiyear programs aimed at safeguarding service continuity (see Exhibit 4.2 and 4.3). Financing such projects resembles traditional infrastructure and industrial lending, but with a clear adaptation objective embedded in the underlying asset. This creates a new class of “resilience-linked” capex programs that banks can directly

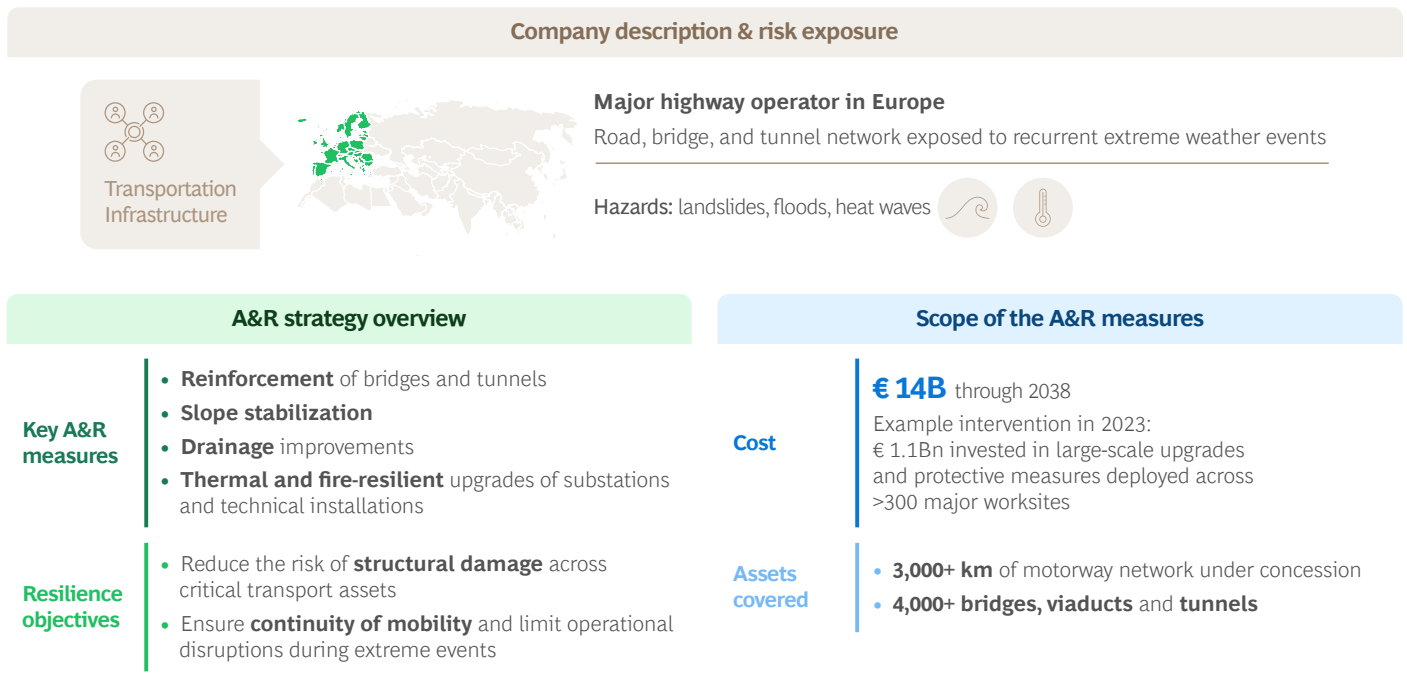
Expanding the pool of bankable A&R projects through ecosystem collaboration

Beyond direct lending to corporations, the next frontier for banks lies in ecosystem-based financing models. Effective adaptation requires coordination across multiple actors: corporations cannot build resilience in isolation. Suppliers, insurers, public authorities, and technology providers all play essential roles in identifying, designing, and implementing viable adaptation measures. In this ecosystem, banks can play a catalytic role by connecting actors, structuring financing platforms, and helping clients translate physical risk assessments into investable programs and aggregating smaller interventions into financeable programs.

Public–private collaboration will be especially critical. Because physical risks and their consequences are highly localized, municipal and national authorities must be involved in planning, prioritizing, and executing adaptation measures. This is particularly true in sectors of public interest such as transportation, water, energy, real estate, and food supply. Banks that establish themselves as integrators, not just lenders, will unlock significantly larger volumes of bankable A&R. projects.

EXHIBIT 4.2

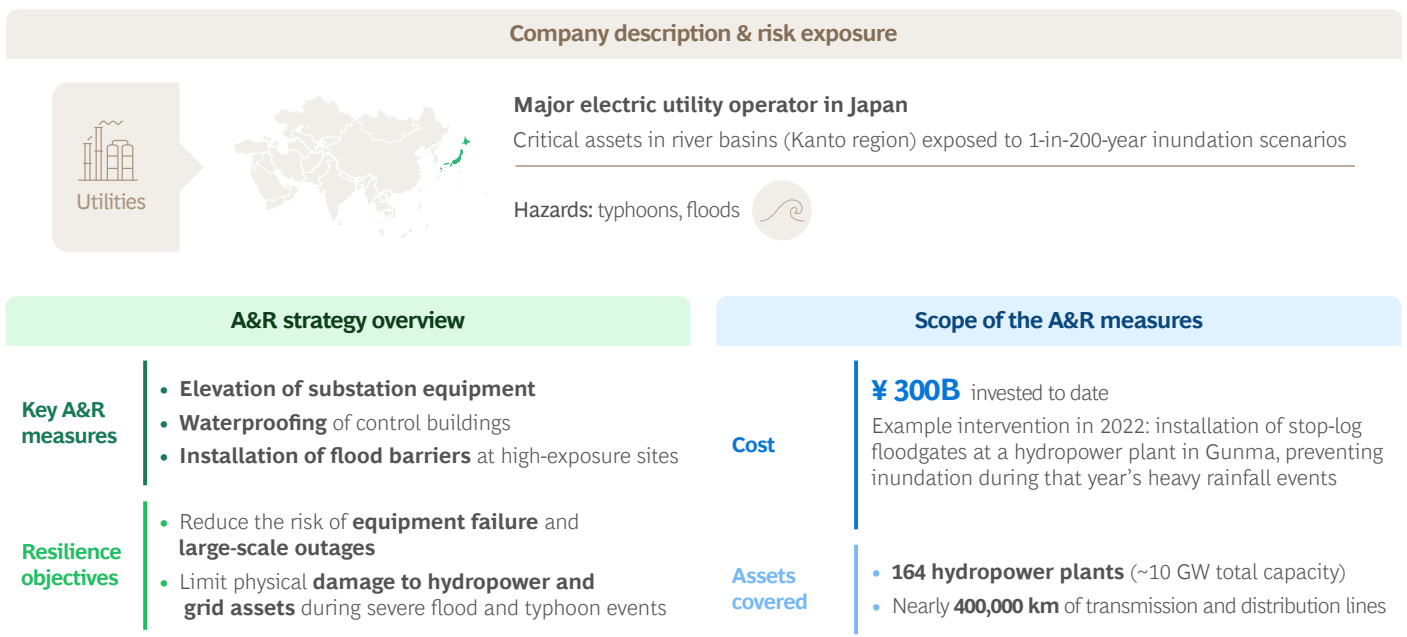
Example of A&R CapEx in the infrastructure industry



Source: Companies' public reporting.

EXHIBIT 4.3

Example of A&R CapEx in the utilities industry



Source: Companies' public reporting.

5. The way forward to capture the opportunity

At BCG, we work closely with both corporations and financial institutions to help them understand, manage, and finance physical climate risks. Through these engagements, we have developed a clear view of the capabilities banks need to build in order to effectively support their clients' A&R journeys and capture the emerging financing opportunity.

1. Solid, bottom-up understanding of physical risks across the portfolio

Corporate clients are interested in knowing the bank's point of view on their exposure to physical climate risk, yet they are understandably cautious about sharing sensitive information on asset vulnerabilities. Banks that come to the table with a credibly articulated risk profile of their clients—through a robust outside-in approach—quickly establish trust and position themselves as strategic partners. A best-in-class assessment requires the following:

- Asset-level analysis, leveraging climate hazard data and sector-specific vulnerability archetypes
- Location-based exposure metrics, calibrated for both current and forward-looking hazard intensity
- Contextual understanding of client maturity, including existing resilience measures based on public disclosures

This bottom-up perspective allows banks to engage clients constructively, grounding discussions in objective insights. It also positions the bank as an informed advisor rather than a passive provider of capital.

2. Targeted outreach approach to engage clients effectively

Meaningful engagement on A&R financing takes time and should follow a structured, targeted approach. Banks should prioritize clients most likely to have immediate resilience needs—usually larger corporations, especially in asset- and capital-intensive sectors such as infrastructure, utilities, and real estate.

An effective outreach typically follows three phases:

- Sector and client prioritization, focusing first on clients with high exposure and mature internal capabilities
- Preparation of pitch materials tailored at single client level, reflecting the bank's asset-level assessment and demonstrating tangible value
- Dedicated workshops, held outside standard relationship-management interactions and involving sustainability, risk, technical functions, and finance teams

By approaching the conversation with preparation and insight, banks build credibility quickly and move from abstract discussion to concrete financing dialogue.

3. Systematized go-to-market model

Banks need a defined internal offering for A&R financing, one that ensures timely responses when clients present short-term financing needs and accelerates commercial discussions. This requires a clear product structure, defined processes, and internal alignment. Key elements include the following:

- A standardized A&R financing product, covering eligibility criteria, approval pathways, and monitoring requirements
- Clear client-facing materials, enabling relationship managers to articulate the value proposition confidently
- Front-line upskilling, so that RMs can manage most discussions directly, escalating only the most technical questions to specialists

This will serve as a basis that can then be adapted and tailored to the needs of each client and will enhance commercial speed and reinforce credibility with clients.

What banks can offer to their corporate clients

Client needs vary widely by size, maturity, and sector. Larger corporations, especially in heavily exposed industries, tend to have sophisticated methodologies for quantifying physical risks and may already have A&R capex plans in place. These clients primarily seek financing solutions.

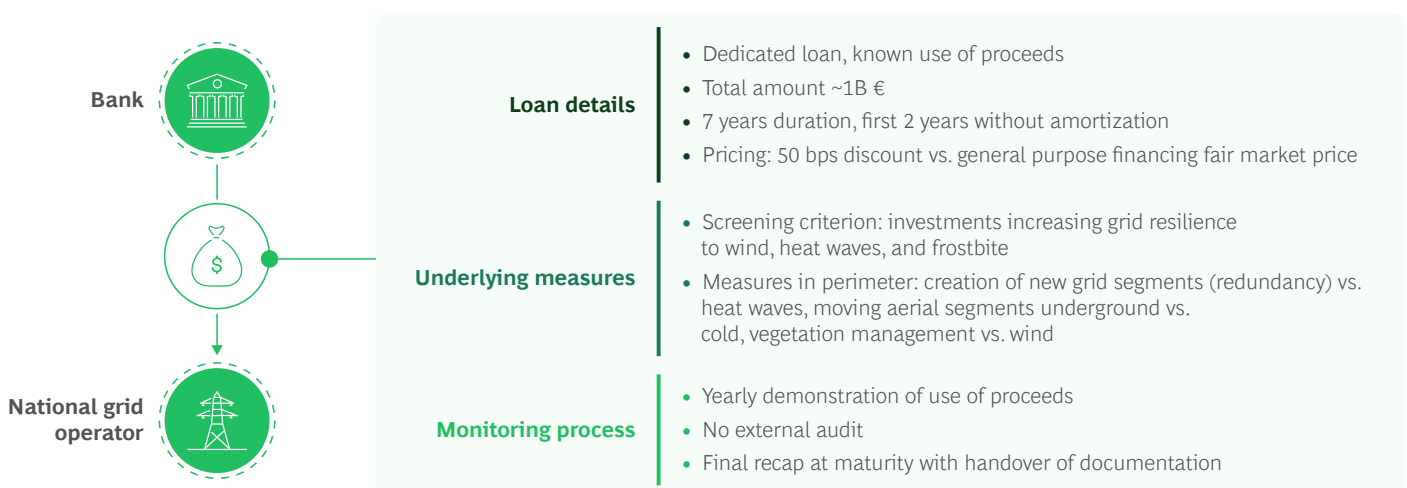
Small and mid-size enterprises, in contrast, often require broader support. Their needs may include assessing exposure, identifying appropriate adaptation measures, connecting with solution providers, and building the business case for investment.

To serve these segments, banks can embed advisory components into their go-to-market model. Standardized elements—such as quantification tools, libraries of A&R measures, and curated lists of solution providers—can help banks act as ecosystem facilitators while preserving scalability.

Across all segments, however, one need is universal: financing the A&R investments themselves. The banks pioneering A&R financing are shaping dedicated products with clear use-of-proceeds frameworks. These solutions typically rest on three pillars:

EXHIBIT 5.1

Example A&R financing deal



1. **Perimeter:** defines clearly and flexibly what qualifies as A&R
Defining eligible investments requires balance. A definition that is too broad risks diluting the purpose of financing and creating reputational concerns, including greenwashing risks. A definition that is too narrow, however, creates unnecessary administrative burden, risks cutting out legitimate investment opportunities, and slows client onboarding.

A pragmatic approach is to define A&R at the level of macro categories linked to major climate hazards (for example, investments that mitigate impacts from strong winds, extreme heat, flooding, etc.). The specific underlying measures can then vary as long as they align with these hazard-based categories.

Verification should occur either annually or at loan maturity, requiring clients to provide reasonable use-of-proceeds evidence without imposing bond-like monitoring processes.

2. **Approval process:** offer a smoother pathway than main market alternatives
To compete with attractive pricing and long durations offered by bond markets and multilateral lenders, banks must differentiate on speed and simplicity. This means minimizing third-party monitoring, keeping the volume of required technical documentation to the necessary minimum, and streamlining internal screening, while preserving necessary safeguards.

A proportionate, banking-friendly process increases client adoption and enhances the bank's competitiveness.

3. **Pricing:** build a competitive offer, while preserving margins
Corporate clients typically expect discounted pricing for dedicated use-of-proceeds financings. Banks have several levers to enable this. One of them is revising cost of risk downward, as A&R investments reduce the client's vulnerability to extreme weather events and therefore improve long-term credit rating. Another is lowering cost of funds, for example, by drawing on internal discounted liquidity pools or by channeling concessional capital, including funds from multilateral institutions that support climate adaptation. These levers allow banks to offer competitive pricing while maintaining profitability.

Conclusion

At BCG, we have a deep expertise in addressing issues related to physical climate risk both from an industrial and a banking perspective. This uniquely positions us to support financial institutions as they build the capabilities needed to capture the A&R financing opportunity. We help banks scale up and enhance their measurement approaches to build a solid understanding of the exposures in their portfolios; we integrate our industrial expertise to sharpen their targeted outreach approach; and we provide risk and banking know-how to support them in the definition of the systematized go-to-market offering, fostering cross-cutting process evolution, helping upskill the front line, and defining new product characteristics.

Current market dynamics suggest that earlier engagement may offer strategic advantages for banks. Corporate investment in physical resilience is only beginning its upward trajectory and will reach close to \$1 trillion per year globally in the coming years. Banks that engage early will benefit from a durable first-mover advantage, capturing market share in a new financing pool that will grow far faster than traditional credit lines.

Beyond the business opportunity, early movers will strengthen client relationships by addressing a risk that directly affects operational continuity. They will also deepen engagement with a broader set of stakeholders—risk, sustainability, and technical teams—expanding their relevance within client organizations.

Ultimately, banks that pioneer A&R financing will secure a stake in one of the defining markets of the future—contributing to a more resilient global economy while creating long-term value for their shareholders.

6. Appendix

a. Methodology highlights

This appendix summarizes the analytical approach used to estimate the following:

- global corporate adaptation and resilience investment needs
- the share of those needs that is financeable through commercial bank lending

The methodology leverages a bottom-up evidence base derived from company disclosures, sector benchmarks, macroeconomic datasets, and climate-risk exposure analytics.

Sizing total corporate A&R spending

To size global A&R investment needs we followed a four-step framework covering scope definition, data collection, assumption setting, and validation. The objective was to produce a consistent global estimate while respecting the heterogeneity of climate exposure, economic maturity, and industrial composition across regions.

We defined the analytical perimeter across countries, sectors, and hazard archetypes.

- Geographies: global coverage of 85 countries, with deeper granularity in the EU and the 10 to 15 largest economies (for example, US, China, Japan, India, and Brazil) where corporate disclosure is strongest
- Sectors: 16 climate-exposed sectors identified through CDP disclosure prevalence and physical risk sensitivity (transportation infrastructure, utilities, real estate, agricultural products, etc.)
- Hazards: flooding, storms, wildfires, heat waves, drought, and hail (hazards informed by physical risk model databases)

We consolidated data points from multiple sources:

- CDP 2023 corporate disclosures, complemented by targeted manual research of sustainability reports
- Oxford Economics for sectoral gross value added (GVA)
- OS-Climate climate-risk exposure datasets

To compare heterogeneous disclosures, all data was normalized around a common anchor: A&R capex as a percentage of revenues.

Leveraging a dataset of nearly 800 CDP corporate disclosures, we derived observed A&R capex ratios for the country–sector pairs with sufficient coverage. For geographies with limited data points, these ratios were then extrapolated across countries and sectors, ensuring that they remained aligned with underlying structural differences and relative climate-risk exposure.

Once established, the resulting ratios were applied to sectoral GVA to estimate total A&R capex, which was then aggregated at the country, regional, and global levels. Directional cross-checks against external benchmarks ensured robustness.

Estimating the bankable share of A&R spending

Using the World Bank's Enterprise Surveys – Investment Financing, we extracted country-level benchmarks for the share of corporate investment financed through the following:

- Internal funds
- Commercial bank loans
- Supplier or customer credit
- Equity or stock sales
- Other financing sources (including nonbank financial institutions, government programs, and DFI-linked financing)

Where available, we applied each country's share of corporate investment financed through commercial bank loans to its A&R spending estimate from Chapter 3 to derive a country-level A&R financing opportunity. Where this metric was missing, we used the corresponding regional average.

b. Key assumptions and methodology considerations

Data

Our analysis assumes that available A&R capex disclosures, though uneven across countries and sectors, provide a representative view of corporate adaptation behavior when normalized to a common revenue-based anchor. GVA and climate-exposure datasets are used as authoritative macro foundations, and climate-vulnerability inputs are applied at the level of sector-specific archetypes, which aggregate underlying asset types into coherent analytical categories.

Methodology

Sector mappings, vulnerability archetypes, and industry regroupings follow structured principles designed to maximize comparability across diverse datasets. The matrix-based extrapolation framework assumes that A&R spending intensity varies systematically with countries' economic development and climate risk exposure, enabling reasoned interpolation where data points are sparse. To reflect national-level adaptation dynamics more accurately, we also factored in the presence of national adaptation plans and mandatory NatCat insurance schemes. Forward-looking estimates for 2030–35 build on GVA evolution as a proxy for economic expansion and investment capacity, ensuring internal consistency even where future A&R disclosures remain limited.

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