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The Climate Change Adaptation Investment Planning (CAIP) Newsletter

A quarterly newsletter spotlighting global efforts in climate adaptation investment planning. In this edition of the CAIP Newsletter, we emphasize the importance of using reliable data and accurate risk assessments as key components for making smart investment decisions in climate change adaptation. We also dive into economic and financial analyses for pinpointing the most efficient and effective adaptation investments. Our goal? To ensure resources go to investments that deliver resilience and sustainability, while providing the best financial and economic returns.



In Focus

Evidence-Based Adaptation Investments

Effective adaptation investment planning depends on access to reliable, context-specific data and robust assessments. As key component of the national adaptation plan (NAP)—which supports countries in identifying and addressing their adaptation priorities, and of the Climate Adaptation Investment Planning (CAIP) process, investment planning helps translate those priorities into concrete, actionable investments. High-quality data and analysis are essential, enabling countries to make informed decisions, attract investments, and ensure that adaptation efforts are both impactful and sustainable.

Leveraging High-Quality Data and Assessments for Actionable Adaptation Investments

Many developing countries face challenges in attracting adaptation investments because of a lack of accurate climate risks data and information, perceived or actual low returns on investment, and low investor confidence in the transparency and predictability of their investments.

Reliable climate risk metrics are indeed essential for making evidence-based decisions in adaptation investments, ensuring resources are allocated effectively to enhance resilience and sustainability. As demonstrated in countries that have implemented the CAIP process, this requires using climate diagnostics that combine observed climate trends,



losses and damages from recent or historic extreme weather events, and projections well into the future, rather than relying solely on long-term model outputs. It also involves focusing on the climate indicators that matter most for development outcomes ("ready reckoners"), integrating evidence from past climate extremes with plausible future scenario ranges, and grounding the analysis in local knowledge to ensure risks are well understood and validated.

In addition, foresight planning and stress-testing approaches help to ensure the selection of the most economically and financially viable investments under various socioeconomic and climate scenarios, while explicitly incorporating uncertainty from both long-term climate change and natural variability—such as the El Niño–Southern Oscillation (ENSO)—into decision making, which is critical for planning investment packages.

Navigating Climate Risks for Investing in Adaptation

Understanding climate change risks is crucial for assessing how potential climate impacts might affect populations, economic sectors and ecosystems, and identifying the most suitable adaptation investments. This involves reviewing historical climate data and projections, and conducting analyses to identify key climate change impact indicators.

Strategic investment planning relies on access to climate and socioeconomic data to identify and monitor evolving vulnerabilities and risks, and it is crucial that data are contextual and accurately reflect reliable assessments of climate risks. **Foresight planning helps countries explore future socioeconomic and climate trends to ensure investments address these trends effectively**. This also involves engaging with stakeholders to discuss key trends like population dynamics, urbanization, food prices, public investment, and natural resource scarcity.

Furthermore, stress-testing investments against various climate scenarios is useful for assessing their effectiveness under different future conditions.

Appraising Adaptation Investments

All financiers expect a return for the risk and capital they deploy. **Demonstrating the viability and benefits of adaptation investments is therefore crucial**. This can involve conducting thorough cost-benefit analyses, economic internal rate of return assessments, fiscal impact evaluations or financial benefit assessments:



- Quantitative **cost-benefit analyses** are conducted to evaluate the financial and economic benefits of adaptation investments. This includes estimating both capital and operating costs, as well as potential economic returns. In addition to quantitative analyses, qualitative assessments of potential benefits are conducted based on literature reviews and experience from similar contexts. This helps in understanding the broader impacts of adaptation investments. For example, in Mongolia's Adaptation Investment Plan for Water Retention Ponds, the average capital cost for investing in each climate-smart pond was estimated at $150,000, with operating and maintenance costs over 5 years estimated at $50,000. The benefits included enhanced agricultural productivity, long-term savings from reduced climate-related damages, and increased farm income, with every MNT 1 invested potentially generating an additional MNT 3–15 in resource-use benefits over the next 15 years.

- Investments are usually evaluated for their **economic internal rate of return** to ensure they deliver high net benefits. For instance, in Indonesia, the Green Kredit Usaha Rakyat (People's Business Credit, KUR) for climate-smart agriculture program provided a high economic internal rate of return of 44.41%, demonstrating significant economic benefits.

- Fiscal impact assessments evaluate the **potential fiscal benefits** of the priority adaptation investments such as higher tax revenues, reduced public expenditure on subsidies, lower disaster relief costs and reduced public infrastructure repair costs, and so on. For example, fiscal benefits from the Armenian Horticulture Sector Adaptation Investment Plan included increased tax revenues from higher agricultural productivity and reduced costs associated with climate-related damages.

- Adaptation investments are expected to deliver **financial benefits** such as increased revenue, reduced operational and maintenance costs, or increased property or market value, leading to overall greater economic stability and growth in the sector where the investment is done. For instance, in Indonesia, the Green KUR for climate-smart agriculture program reduced farmer costs by about 8% and increased their revenue by more than 12% compared to an existing microcredit program without a climate-smart focus.

Applying the ADB CAIP Approach for Evidence-Based Adaptation Investments in Cambodia

The CAIP for Cambodia focuses on a special economic zone, Economic Pole 4 (EPOL4), in the country's northwest. The EPOL4 development goals focus on increasing agricultural productivity and value in the rice and fish value chains, support for agricultural infrastructure, credit, and agro-trade, and strengthening governance and human resources in agriculture. The aim of the CAIP is to allow the Ministry of Agriculture, Forestry and Fisheries, which is responsible for coordinating the development of Economic Pole 4, and the Ministry of Economy and Finance—responsible for coordinating national development investment and financing—to enable investments in climate adaptation in EPOL4. The government identified the need to climate-proof the investments identified for the development of region and to identify investments directly supporting climate adaptation.

The Role of Data and Assessments in Driving Adaptation Investments in Cambodia:

- Understanding how current and future climate risks impact investments in agriculture in EPOL4. This includes reviewing literature on climate change and disaster risks, conducting analyses on climate sensitivity of high-value crop commodities and impacts of high temperatures on labor productivity, as well as developing climate change storylines based on downscaled climate data.
- Exploring future socioeconomic and climate trends related to EPOL4 to ensure that investments address these trends. This involved meetings with line ministries and provincial governments to discuss key trends around population dynamics, urbanization, food prices, public investment in agrifood systems, and scarcity and degradation of natural resources.
- Identifying and grouping adaptation priorities into programmatic areas suitable for financing, included stress-testing EPOL4 investments against climate storylines and sequencing the packages over time in relation to their urgency and linkages between activities.
- Assessing the costs and benefits of investing in each adaptation package, aligning with Cambodia's public economic appraisal and financial evaluation criteria. This includes qualitative assessment of potential benefits, covering economic benefits, fiscal costs and benefits, and direct financial benefits or revenues.

Success Stories

PCRAM: A Comprehensive Approach to Assess and Manage Physical Climate Risks for Investors

The Physical Climate Risk Appraisal Methodology (PCRAM), developed in 2020 by the Coalition for Climate Resilient Investment, provides a standardized approach to assess and manage physical climate risks for critical real asset investments, such as infrastructure. In 2023, oversight of PCRAM transitioned to the Institutional Investors Group on Climate Change. The application of PCRAM 1.0 has been demonstrated through several case studies, which have allowed the incorporation of lessons learned to develop PCRAM 2.0. This updated approach is being piloted in four investments, with results expected to be published next autumn.

Figure 1 illustrates the four phases of the current PCRAM methodology, highlighting in blue the changes from the previous PCRAM 1.0 approach. The methodology outlines a four-step process: scoping and data gathering, materiality assessment, resilience building, and value enhancement (formerly the economic and financial analysis phase). It is designed to be applicable throughout the investment life cycle, from due diligence to post-acquisition management, for various types of physical assets or portfolios, and for both acute and chronic climate threats.

Figure 1: The PCRAM Process

Steps	Scoping and data gathering	Materiality assessment	Resilience building	Value enhancement
Objective	Determine data sufficiency	Assessing asset vulnerability	Identifying adaption options	Optimised resilience with residual risk transfer
Sub-tasks	• Project initiation • Project definition • Data gathering and sufficiency	• Hazard scenarios • Impact pathways • Financial sensitivities (return & debt) • Distinguish acute damage vs. chronic performance efficiency	Adaption options, costs and availability: • Hard (Structural/ Capex) • Soft (Operational/ Systems)	• Identify resilience metrics • IRR comparisons • Insurability and credit quality
Outputs	• Initial climate study • Critical asset and system components • KPI selection, risk appetite • Base Case cashflow	• Detailed climate study • Quantified list of impacts and severity by component • Climate Case(s) cashflow forecast	• Repeat materiality assessment • Cost/benefit for suitable measures • Adaptive pathways • Resilience Case(s)	• Investment case narrative • Value implications across investment value chain actors e.g. investors, lenders, insurers
Decision gates	Gate A What are the scope boundaries and data sufficiency according to the investment strategy?	**Gate B** Are PCRs material for the asset(s)? Reviewing asset KPIs, what factors influence the materiality?	**Gate C** What are the most effective adaption options for this asset, the optimal timing for their implementation, and the responsible parties for funding and execution?	**Gate D** How can resilience investment be optimised and incentivised, while ensuring equitable risk-reward distribution across the value chain actors?

Text in blue has been added as part of PCRAM 2.0.
Source: IIGCC. 2025. Physical Climate Risk Appraisal Methodology 2.0 IIGCC. June.

Piloting the PCRAM Methodology to a Real Case Study

One of the investments where the PCRAM 1.0 was applied is a run-of-river hydropower facility put forward by the investment organization Climate Fund Managers. This project, located in a non-OECD country, had a planned lifetime of 40 years, and a generating capacity of over 40 megawatts, expected to produce approximately 200 gigawatt-hours of electricity per year.

Main climate risks

The assessment focused on two primary climate risks: drought and precipitation. Global and regional climate projection models were analyzed, indicating that heat, drought, and precipitation events were likely to increase in the area. Drought was identified as the most significant climate-related risk due to the plant's reliance on river flow for energy production.

During the materiality assessment phase, two future climate scenarios were examined to understand the chronic risks linked to changes in annual precipitation. These changes were incorporated into the existing hydrological model, which was then combined with an energy model to predict the impact on energy production. The projections indicated that river discharge would remain relatively stable until 2040, after which a 15-20% decrease is expected between 2040 and 2060. These findings suggested unexpected variations in yearly energy output.

Building resilience

To mitigate these risks, a range of resilience measures were identified to improve management, efficiency, and recovery from reduced rainfall and drought conditions, including: 1. Additional flushing and sediment management structures; 2. New access road direct to river to aid sediment management and clear debris; 3. Sediment excavator for excavation of sediment; 4. Installation of variable flow turbines and electro-mechanical equipment designed to account for greater uncertainty in flow rates; 5. Design intake to allow some flexibility in vulnerable areas; 6. Additional slope protection and stabilization measures; 7. Slope stability monitoring/surveying; 8. Installation of corrosive resistant turbine blades; 9. Replacement and reassessment of the two rubber dams, their location, alignment, material and size at end of 25-year life. Measures 2, 4, 5 and 6 were added to the cash flow model analysis.

Economic and financial analysis

The economic and financial analysis calculated internal rates of return (IRRs) over a 20-year period, considering two different climate scenarios (a 1-month drought in the dry season and a 3-month drought in the wet season) and three probability scenarios (P50, P75, and P90) to quantify the financial impact of physical climate risks. The findings indicated that while projected droughts would have minimal impact on the asset's IRRs in the medium term (fewer than 20 years) because the dry season flow is projected to increase, significant material impacts could be expected in the longer term (beyond 20 years), with substantial annual losses in energy production anticipated. However, implementing the recommended resilience measures could enhance the project's IRR.

Lessons learned

The lessons learned from applying the PCRAM methodology to this case study can be summarized as follows:

1. **Multifaceted benefits of investing in resilience.** Resilience benefits go beyond financial gains, and nonmonetary benefits should be taken into account when evaluating the overall impact of resilience measures.

2. **System-level resilience considerations.** Resilience should be evaluated at the system or network level where the asset operates, rather than focusing solely on individual assets. This approach allows for a better understanding and enhancement of the overall resilience of the entire system to physical climate risks.

3. **Insurance gaps for hydropower projects.** There is no insurance coverage for hydropower projects against drought-induced generation losses.

4. **Use multiple climate scenarios.** Employing multiple climate scenarios and consulting climate scientists is essential for ensuring appropriate and comprehensive data use in risk and materiality assessments.

5. **Challenges in technical due diligence for climate risk.** Various factors hinder comprehensive climate risk assessments during due diligence, such as the absence of established best practices, limited stakeholder awareness/involvement, and insufficient funding for the due diligence process.

PCRAM 2.0 and its four case studies have sought to address these lessons learned from PCRAM 1.0 case studies.

Key Feature in this Edition

COP30 Delivers: Adaptation Finance Moves from Pledges to Action

COP30, the 30th conference of the parties under the UN Framework Convention on Climate Change (UNFCCC), in Belém marked a turning point for climate adaptation finance. From tripling global adaptation funding by 2035 to launching country-led platforms and risk-sharing tools, this "Implementation COP" set the stage for turning adaptation priorities into concrete investments. Here's what you need to know about the commitments that could reshape adaptation investment planning.

COP30 in Belém: A Turning Point for Adaptation Investment

COP30 in Belém, Brazil — widely referred to as the "Implementation COP" — marked a decisive shift in how the world approaches adaptation finance. This year's summit aimed at moving beyond aspirational pledges to focus on real-world delivery, turning countries' adaptation priorities into actionable investments.

Recent analyses published in the lead-up to COP30 reinforced this shift, including the Returns on Resilience report, drafted by SYSTEMIQ in collaboration with over 20 partners and supported by the Gates Foundation, which underscores that adaptation delivers tangible economic returns—protecting development gains while catalyzing jobs and private investment when resilience is embedded into mainstream planning and capital allocation. The joint multinational development bank (MDB) report From Innovation to Impact: Building Resilience for People and Planet further highlighted that strengthening cross-government coordination, optimizing the use of concessional resources, and translating climate strategies into bankable opportunities are essential steps for scaling adaptation investments and enabling MDBs to significantly increase their impact.

This momentum was also reflected in the launch of the Climate Investment Funds' Accelerating Resilience Investments and Innovations for Sustainable Economies program, designed to help countries accelerate the shift from planning to implementation and bring forward a pipeline of bankable adaptation investments.

This growing momentum set the stage for one of the most significant political outcomes of COP30: the call for efforts to triple global adaptation finance by 2035. This ambition sends a clear signal that adaptation can no longer remain a secondary priority. However, increasing the *volume* of finance is only part of the challenge—the *form* of that finance is equally critical. Many essential adaptation investments, such as coastal protection, flood management, and other public good resilience infrastructure, do not generate direct revenue streams and therefore are unlikely to attract private capital, even with strong de-risking. Meeting the tripling ambition will thus require not only mobilizing private investment where viable, but also ensuring substantial public and concessional finance for priority areas that will remain publicly funded.

The NAP Implementation Alliance: From Plans to Pipelines

A key achievement of COP30 was the launch of the National Adaptation Plan (NAP) Implementation Alliance, a global coalition designed to accelerate the shift from planning to implementation. The Alliance's mission is to transform adaptation priorities into concrete, actionable investments that deliver resilience. By creating a structured platform for collaboration, the Alliance aims to mobilize expertise, resources, and political momentum to deliver resilience at scale.

The Alliance will provide countries with the institutional mechanisms and partnerships needed to design financing structures, manage risk, and attract capital from public and private sources. It will address longstanding challenges of fragmentation and inefficiency by fostering coordination and reinforcing country ownership. In essence, the Alliance is conceived as a game-changer: it anchors adaptation investment planning in a global framework focused on coherence, implementation, and measurable outcomes—ensuring that ambitious goals translate into concrete investments that strengthen resilience.

Country Platforms Hub: Building National Leadership for Adaptation Finance

At COP 30, governments and development partners announced the creation of the Country Platforms Hub, a global support mechanism designed to help nations establish and strengthen "country platforms" for climate finance. A country platform is a national coordination mechanism—usually housed in a ministry or national development agency—that pools domestic resources, donor finance, and multilateral development support under a single governance framework. Rather than managing projects in isolation, country platforms enable governments to organize climate finance around a national strategy, improve alignment across ministries and development partners, and reduce fragmentation, duplication, and transaction costs in the climate finance landscape. Critically, they also embed delivery in shared results measurement frameworks (indicators, targets, and monitoring and evaluation) so progress and impact can be tracked consistently across partners.

The new Hub will provide technical assistance, governance models, capacity building, and knowledge exchange for countries wishing to create or scale such platforms. The Hub received an initial $4 million to cover early-stage activities, including governance setup, coordination, and a "Spark Plug" window for designing nascent country platforms (13 countries committed to building country platforms through the GCF Readiness Programme).

Through country platforms, countries can organize climate investment around a coherent adaptation investment envelope rather than a collection of standalone projects. This groups related activities into coordinated, whole of society programs that address interconnected resilience needs through contributions from public funding, MDBs, development partners and private actors. By shifting from fragmented project by project approaches to structured, programmatic investment frameworks, country platforms enable governments to guide finance toward priority sectors more strategically and transparently. The Country Platforms Hub supports the core ambition of COP 30: moving into an era of implementation in which adaptation commitments translate into concrete investment, resilience, and measurable impact. The Asian Development Bank's Climate Adaptation Investment Planning (CAIP) program has been promoting a similar approach focused on priority sectors, to translate countries' adaptation priorities into programmatic investment plans embedded in fiscal and planning frameworks.

MDBs Step Up: De-Risking Adaptation Investments

ADB and other multilateral development banks at COP30 also pledged to harmonize their processes and deploy risk-reducing instruments to make adaptation investments more attractive. Their joint statement emphasized the importance of country-led financing and signaled a shift toward de-risking investments through the use of tools such as first-loss guarantees, concessional cofinancing, and blended finance structures. These instruments are critical for key adaptation investments that remain commercially challenging, such as ecosystem-based adaptation or urban resilience infrastructure.

By embracing de-risking strategies, MDBs are helping to unlock private capital for adaptation—a space traditionally dominated by public finance. This evolution is central to the success of adaptation investment planning. Without risk-sharing mechanisms, many high-value resilience investments will struggle to attract funding. COP30's emphasis on these tools reflects a growing consensus: adaptation finance must be innovative, flexible, and capable of addressing the unique challenges of climate resilience.

The Way Forward

Taken together, these initiatives represent a fundamental shift in adaptation finance. Countries will have institutional anchors to steward investment planning, reducing fragmentation and reliance on short-term projects. They will have access to mechanisms for building concrete investments and presenting them to investors. And they will be able to leverage risk-sharing innovations to attract private capital for projects that deliver resilience benefits and carry higher risk profiles. Most importantly, these structures reinforce country ownership, ensuring that adaptation investments align with national priorities—rather than donor-driven agendas.

Despite progress, significant hurdles remain and addressing them requires a coherent approach. First, while efforts to triple adaptation finance signal growing ambition, it is important to acknowledge that a substantial share of adaptation needs—particularly in areas with a strong public-good resilience component—will not attract meaningful private sector investment, even with strong de-risking. These investments often lack clear revenue streams and therefore rely on sustained public and concessional financing. A dual approach is therefore essential: expanding de-risking instruments to attract private capital where feasible, while at the same time scaling up grants and concessional finance for investments that must remain funded by public sector sources.

Moreover, Country Platforms must stay genuinely country-led to prevent donor dominance and ensure ownership. At the same time, many countries lack the technical capacity to design sophisticated, bankable investments, which makes targeted technical support indispensable. This need for support also implies sustained, long-term resources to keep platforms and investment planning functions operational.

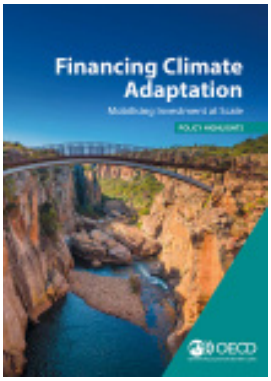
Finally, accountability is essential to show that increased finance delivers real resilience outcomes rather than just higher disbursement levels. Strong transparency and rigorous monitoring will be key to achieving this.

The launch of the NAP Implementation Alliance, the Country Platforms Hub, and MDB commitments provide a strong foundation for turning adaptation ambitions into actionable investments. If countries seize this opportunity—by developing robust Climate Adaptation Investment Plans, building and owning their platforms, and leveraging risk-reduction instruments—the tripling of adaptation finance could drive transformative resilience.

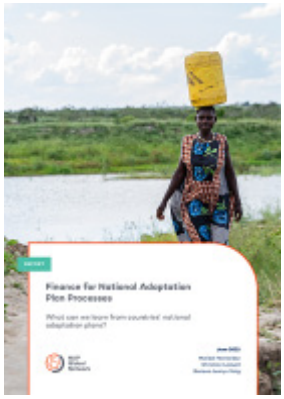
Publications and Resources



The *Returns on Resilience* report, produced by SYSTEMIQ in collaboration with more than 20 global partners and supported by the Gates Foundation, offers one of the most comprehensive assessments to date of the economic returns of climate adaptation. Released ahead of COP30, the report reframes adaptation not as a cost, but as a strategic investment agenda capable of driving growth, competitiveness, and job creation across emerging and developing economies. Drawing on evidence from over 120 organizations worldwide, the report demonstrates that resilience investments deliver significant socioeconomic benefits, with strong and measurable returns. Scaling high-impact adaptation solutions can unlock a trillion-dollar market opportunity and create more than 280 million jobs by 2035, underscoring the central role of adaptation in economic transformation. Read the full report here.



The OECD report on *Financing Climate Adaptation Mobilising Investment at Scale* provides a concise summary that distills the key messages from an OECD comprehensive input paper (with AfDB) to the G20 Sustainable Finance Working Group. Despite a compelling economic and social case for adaptation investment, significant challenges remain in translating this into finance flows at the necessary scale. This report takes a practical approach by looking at what is already working and setting out how these approaches can be scaled up, across the following areas: strengthening data and capacity; improving the domestic enabling environment; and, improving the accessibility and effectiveness of international support. Read the Policy Highlights here.



Finance is a core enabler of the national adaptation plan (NAP) process. From planning to implementation, adequate and sufficient finance determines whether adaptation priorities move from paper to action. But how do NAP documents approach adaptation finance? *Finance for NAP Processes*, a new report by NAP Global Network experts Maribel Hernandez, Christian Ledwell, and Juanyu (Geneva) Yang, unpacks how countries are addressing adaptation finance issues throughout their NAP processes. The analysis of 59 multisector NAP documents also highlights good practices, real-world examples, and areas for improvement to help countries secure sufficient and adequate finance for their adaptation priorities. Read the full report here.



The World Resources Institute has released a new paper *Strengthening the Investment Case for Climate Adaptation*, showcasing the strong economic, social, and environmental benefits of adaptation investments. Based on an analysis of 320 projects across 12 countries, the research finds that every $1 invested in adaptation yields more than $10 in benefits over a 10-year period. Some sectors, such as health, demonstrated annual returns exceeding 75%. The paper offers valuable insights for policymakers, funders, and practitioners working to scale up adaptation finance. Read the full report here. A summary of key takeaways from the research is available here.



Sizing the Inevitable Investment Opportunity: Climate Adaptation, a report from GIC and Bain, estimates the climate adaptation investment opportunity across public and private debt and equity at $2 trillion, with projections reaching $9 trillion by 2050. It emphasizes that investors do not need to predict the exact climate scenario through 2050 to take action. Instead, it offers a practical framework by presenting relative market sizes for 21 investable, pure-play adaptation solutions, helping build confidence in adaptation as a viable and scalable investment strategy. Read the full report here.



The latest report from J.P. Morgan's Climate Intuition series *Unlocking Resilience Through Climate Adaptation | J.P. Morgan* positions adaptation not only as a critical risk management tool but also as a compelling investment opportunity. The report sheds light on the persistent underfunding of adaptation compared to mitigation, the rising economic costs of extreme weather events, and the cognitive biases that often delay action. It also highlights the strong return on investment in adaptation—ranging from $2 to $43 for every dollar spent. By embedding adaptation into strategic planning, businesses and policymakers can unlock long-term value, reduce exposure to climate risks, and tap into new growth opportunities in an evolving global landscape. Read the full report here.

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If you have any questions or would like to contribute to future editions of the CAIP newsletter, please feel free to contact us at mhernandez@iisd.org or caipteam@adb.org.

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