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Translating climate and disaster-related risks information into public investment decision-making in Asia and the Pacific

Regional Workshop on Climate and Disaster Risk-Informed Investments

23 June 2023 • Bangkok, Thailand

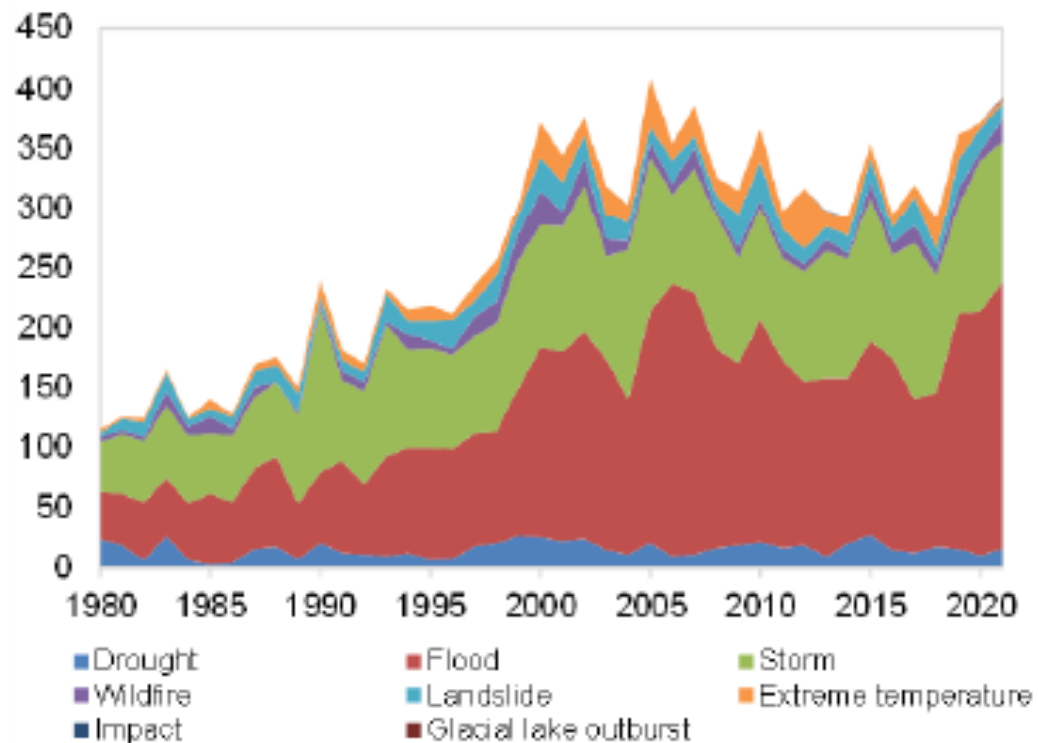


Agenda

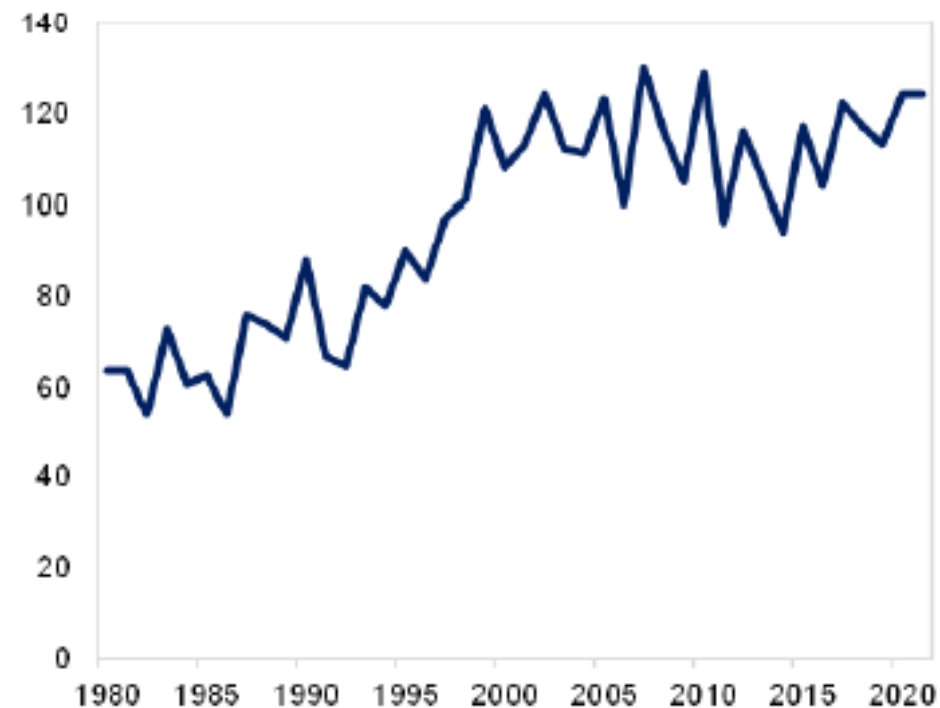
- Setting the scene on adaptation and resilience risks
- Understanding climate & disaster-related risks
- Bridging the gap in climate action
- Case study: Philippines

Climate-related disasters are intensifying...

Frequency of Climate-Related Disasters (1980-2021, Count)



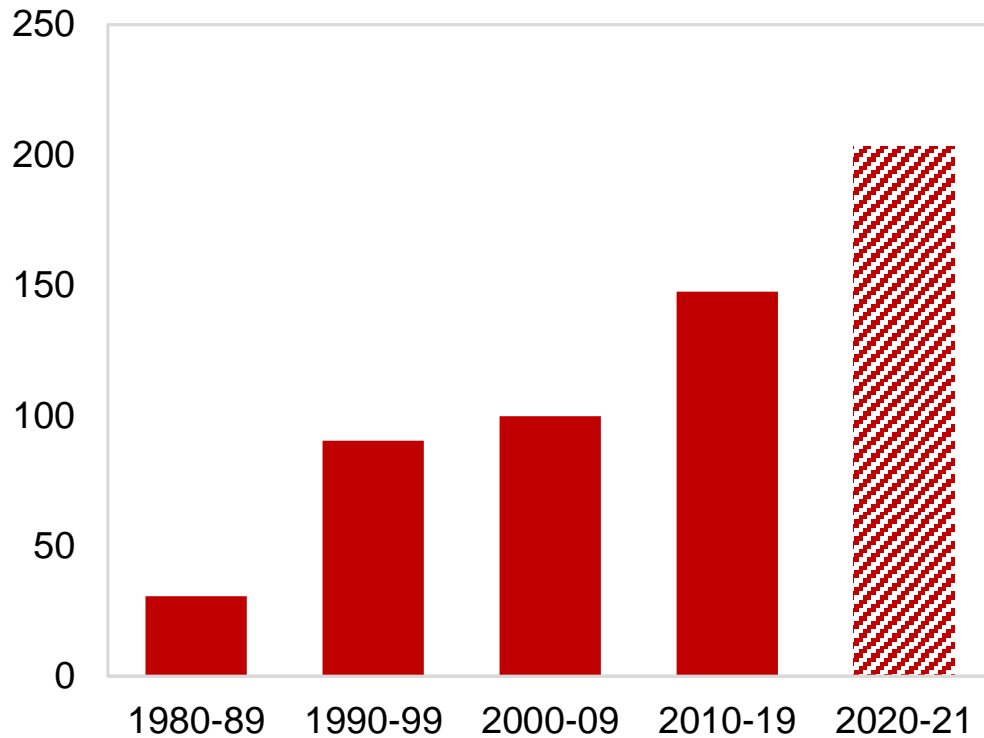
Number of Countries Affected by Disasters (1980-2021, Count)



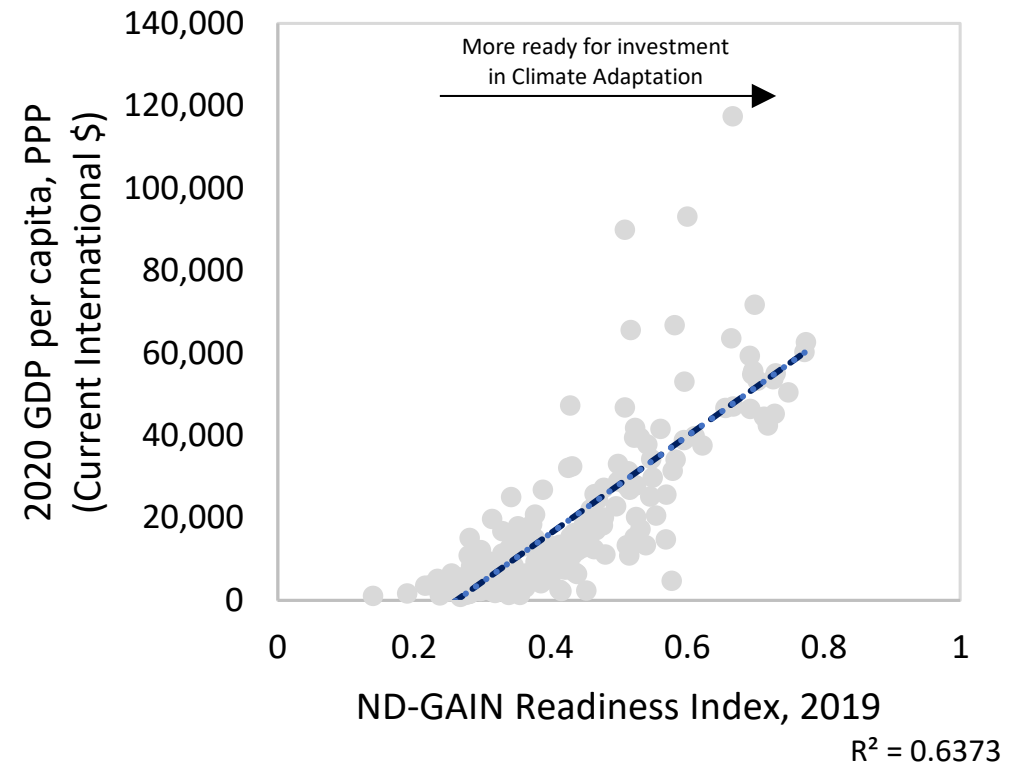
Source: EM-DAT Database, Authors' calculations.

Costs are rising and developing countries are most vulnerable...

Average Costs of Climate-Related Disasters (1980-2021, USD Billions)



National Income and Climate-Readiness (2019-2020, Units)

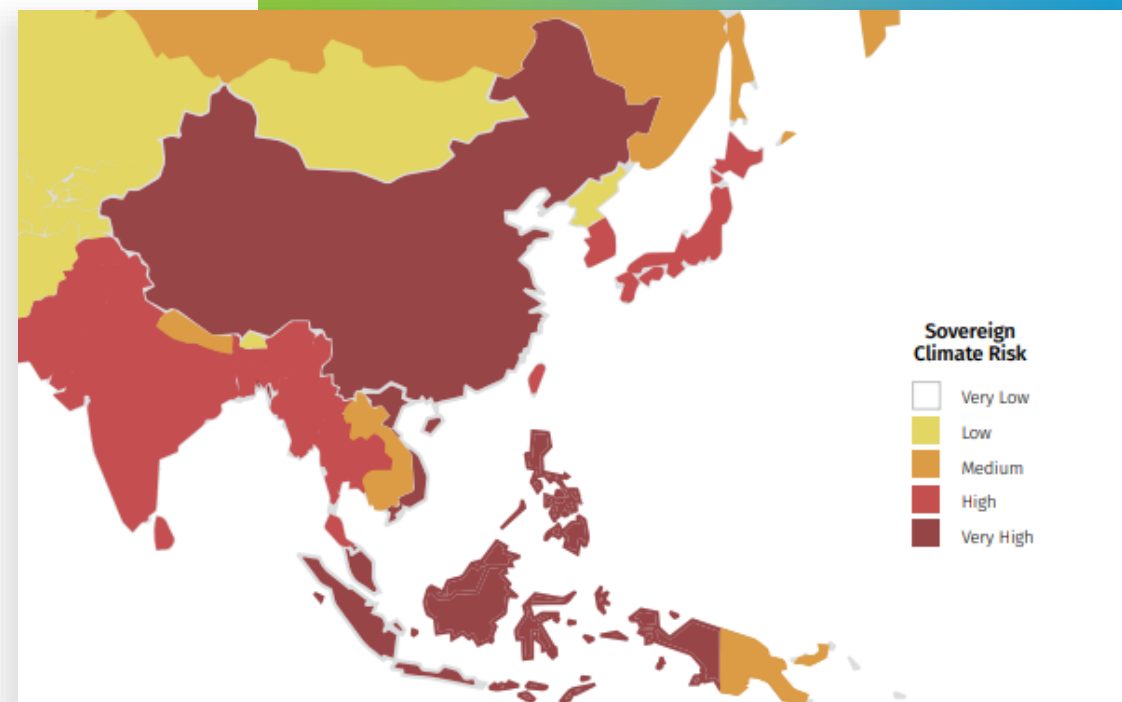


Source: EM-DAT Database, ND-GAIN Index, World Bank World Development Indicators, Authors' calculations.

Exposure to six physical climate hazards in 39 Asian countries: floods, heat stress, hurricanes & typhoons, sea level rise, water stress and wildfires

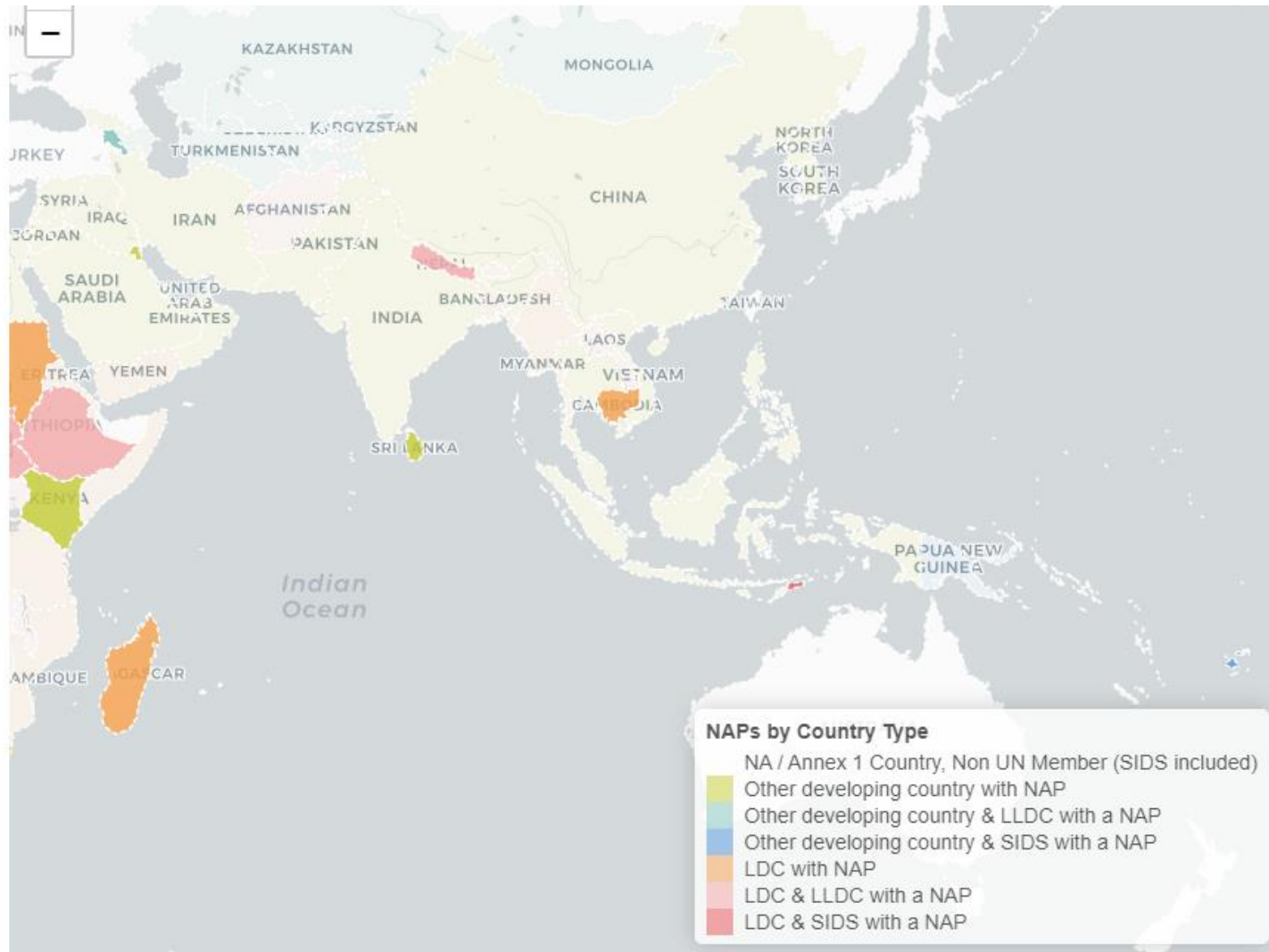
- The Philippines emerges with the highest risk score followed by China.
- Larger economies tend to have a larger total sum of people and capital exposed to hazards, while smaller nations tend to have a larger percent of their assets exposed. Both types of exposure have significant implications for nations, economies and supply chains.
- Approximately 60% of Singapore’s GDP (PPP) and 39% of its population are projected to be at high risk of floods, which suggests the potential for significant impacts on commutes and supply chains, in addition to asset level damage.
- In the Philippines, 77% of the population and 80% of the GDP (PPP) is projected to be at risk of hurricanes which can exacerbate other challenges and require significant rebuilding expenses.
- Meanwhile 49% of China’s GDP (PPP) will be at high risk of flooding by 2040, while 41% of its population will be at risk. This equates to about US\$21 trillion and 547 million people.

Flood risk ratings across Asia – with the darkest colors showing the areas most prone to flooding risk



Source: Moody’s 2021 Sovereign Fixed Income

Asia Pacific region lags on National Adaptation Plans (NAPs)



- Armenia
- Bangladesh
- Fiji
- Kiribati
- Nepal
- Papua New Guinea
- Sri Lanka
- Timor-Leste
- Tonga

Source: <https://napcentral.org/submitted-naps>

...as opposed to 49 countries submitting nationally determined contributions (NDCs) towards decarbonization in Asia

- **Each country** should define a **credible transition path for both mitigation and adaptation.**
- **Coordinated** actions in line with the **international community** are equally important
- **Resilience dimension** in decarbonization is interlinked and so is **disaster & climate** finance





- Current climate scenarios **do not adequately account for acute risks from extreme weather events**, especially droughts (although they are decent for hurricanes and floods)
- The current scenarios ignore the possibility that **climate-related risks may compound with shocks of other nature**, such as pandemics and debt crises
- The climate scenarios recommended by the regulators **focus on stand-alone damages caused by climate change**
- Climate scenarios are still **neglecting spillover and cascading climate risks**, such as transition risks from the introduction of climate regulation in multiple countries
- Currently, climate scenarios are constructed **without considering the role of the financial system**, such as the expectations of investors on the realization of climate scenarios.
- **Climate scenarios are still limited** and therefore require further adjustments and constant re-calibration based on the latest climate science.
- **Therefore, it is important to take these limitations into consideration when risk management and strategy development**

Risks related to climate and disasters



What are Climate & Disaster-related risks?

Physical risk

Changing climate conditions
Extreme weather events



Direct damage to assets or property

- Lower asset values
- Increased insurance claims
- Supply chain disruption

Transition risk

Policy changes
Technological innovation
Social adaptation



Disruption from adjustment to low-emissions economy

- Impacts on pricing and demand
- Stranded assets
- Defaults on loans

Liability risk

Stakeholder litigation
Regulatory enforcement



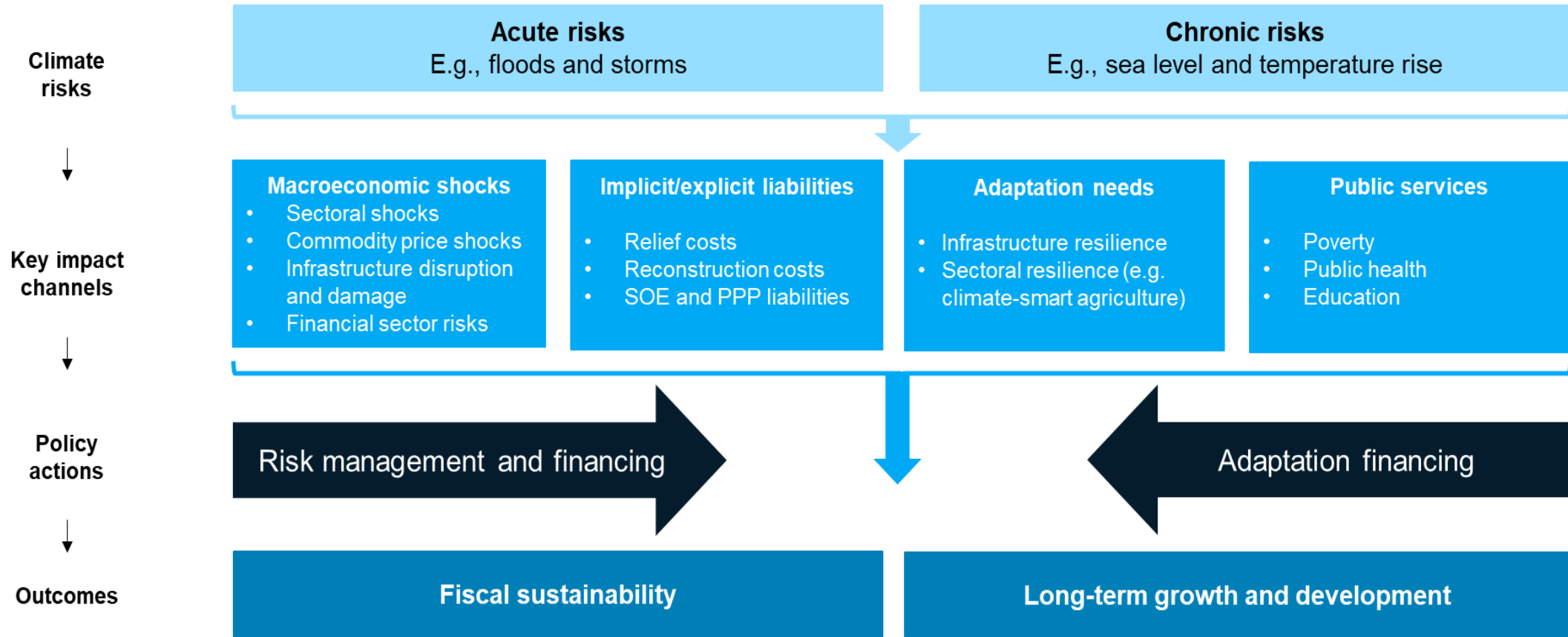
Not considering or responding to the impacts of climate change

- Business disruption resulting from litigation
- Penalties resulting from litigation

Source: Bank of England, 2015; Australian Prudential Regulation Authority, 2021

Climate-related risks pose a frequent, sizeable and increasing risk to fiscal sustainability

Climate risks, both acute risks (e.g., floods and droughts) and chronic risks (e.g., changes in precipitation patterns), can affect the fiscal position of nations both directly and indirectly through four key impact channels:



The background features a teal gradient with abstract geometric shapes in green, blue, and orange. On the right side, there is a large blue gear-like shape containing a circular inset with a financial candlestick chart and a bar chart.

Public Investment Management (PIM) and Climate Action




Achieving climate goals will depend on well managed public investment plans ...

- In 2017, ADB estimated a \$1.7 trillion/year infrastructure gap in Asia Pacific.
- Asia-Pacific will be home to nearly 200 cities with 1 million+ in population by 2030.
- Funding needs are increasing as the region emerges from ...
 - » ...fragmented economic growth, COVID-19 pandemic, tightening budgets & debt burden, rising cost of living, higher Paris Agreement alignment costs...



Public investments do not exist in vacuum – there are broad intersections with the roles of many actors in managing their own CRR and DRM.





**Ecosystem
approach is
needed...**

...to tackle system-
wide implications of
CRR and DRM

What are the entry points for CRR and DRM?

Economic planning: With identification of project needs, costs, benefits and results

Fiscal policy: At alignment of public investment management with a country's long-term development plan, climate policy, legal framework, and transition needs

Monetary Policy: Financially resilient Central Banks and Financial Market Regulators processes and functions

Non-financial private sector: As part of the dynamic and adaptive risk screening, allocation & management



Economic planning

- Adopt National Adaptation Plans (NAPs): NDCs are important but without NAPs, climate action is not sustainable
- National and subnational development planning: aligned with risk-based screening and selection
- Economic cost and benefit: must include climate and disaster-related risks to provide a more comprehensive analysis

A risk-based approach to fiscal management can help determine the fiscal buffers and self-insurance necessary to mitigate the impacts of climate and disaster-related risks.

Investing in risk reduction:

Strengthen investment resilience against physical risks and incorporate regular diagnostic tests to enhance the efficiency of public investments

Developing contingency financing plans:

Disaster relief and recovery funding should rely on a mix of self-insurance (contingency reserves and funds); contingent plans for disaster responses using borrowed or grant resources; and risk transfer arrangements using insurance, state-contingent debt instruments (SCDIs), and other capital market options

Building fiscal buffers:

Depending on the extent of vulnerability, international experience suggests reserving a percent of spending in order to deal with the fiscal risks associated with natural disasters (Cebotari and others 2009). Unused funds could, within certain limits, be transferred at the end of the budget year to a notional fiscal buffer for use during a future disaster.

Establishing clear good practices for each area can support **Ministries of Finance** manage climate-related risks

Fiscal sustainability assessment

How do central finance agencies assess and quantify climate-related fiscal risks?

Fiscal risk management and strategy

How do central finance agencies manage risks from climate change?

Adaptation financing

How can fiscal policy tools support public and private adaptation financing?

Objectives of this work:

- Consolidate a large evidence base of resources on these three key areas
- Make concrete links between theoretical best practice and practical implementation needs
- Take into account the needs, objectives and capacities of Ministries of Finance



Understanding climate-related risks and their transmission channel can help in formulating evidence-based fiscal strategy in response to climate change

Assessing direct and indirect impacts of climate risk for fiscal sustainability

- Coverage of **risks and impacts**
 - » Identification of risks - use of risk narratives
 - » Quantification of risk metric
- **Sensitivity and stress testing** to address climate change uncertainties and assess resilience of public finance
- **Forward looking implications** of how risks to public finance may evolve with climate change

Case study: Simplified disaster stress testing in Micronesia to assess the resilience of debt sustainability.

Case study: USA climate related fiscal sustainability analysis to identify potential future impacts of key climate risks on federal spending by mid and late century.

Embedding climate-related fiscal sustainability assessment into practice

- **Public disclosure** to ensure climate risks are considered within a broader suite of systemic risks and are managed alongside other priority fiscal risk
- **Integration into macroeconomic modelling** (e.g., I-O model, CGE model) to identify primary and secondary impacts of climate risk on key economic variables and support consistent view of climate risk across ministries

Case study: Philippines annual fiscal risk statement impact of disasters, investment needs and ongoing risk management initiatives.

Case study: Denmark uses dynamic CGE model combined with models from sectors to assess impact of climate policies on GDP, wages and investments.

Case study: Pakistan's macrostructural model has included economic impacts of heat stress and floods on labor and productivity and how adaptation investments and reduce risks.

Risk management strategy for climate-related fiscal risk includes set of policies to reduce the likelihood or impact of risk to government revenue streams, disruption to the economy, or unsustainable debt and support adaptation investment

Assessing direct and indirect impacts of climate risk for fiscal sustainability

- **Risks assignment** to provide clarity on contingent liability, create incentives to invest in adaptation and understand overall fiscal exposure
- **Managing fiscal risk exposure** through risk reduction, risk retention and risk transfer. Developing fiscal health indicators to inform risk management needs, adopting risk layering to develop cost effective risk management strategies and adopting dynamic approaches.
- **Selecting portfolio of cost-effective risk management instruments**

Case study: South Africa's explicit contingent liability in PPP contract

Case study: UK Treasury has issued The Green Book to provide guidance on appraising policies by assessing costs, benefits and risks of alternate ways to meet government objectives.



Image Source: ABC

Increasing adaptation needs require large-scale resource mobilization from both public and private sources. Ministries of Finance can play two key roles in mobilizing adaptation finance and investment:

Mobilizing efficient public adaptation investment and financing

Budget Allocation

- Signalling action on adaptation in a pre-budget circular
- Incorporating climate-related risk information and scenarios in long-term budgets
- Tracking adaptation expenditure

Investment prioritization

- Cost-benefit & cost-effectiveness analysis
 - Multi-criteria assessments
 - Adaptive pathways & scenario analysis
-

Case study: People's Survival Fund, The Philippines

Case study: India Budget allocation and expenditure ceilings in the medium-term expenditure framework for forestry and water management sector includes climate adaptation components

Mobilizing private and international sources of finance

- *Long-term adaptation plans complemented by financing strategy to communicate adaptation finance needs*
 - *Leverage private sector actions in adaptation by developing specific financing instruments that de-risk and facilitate private investments, such as through blended finance and guarantees*
 - *Access to international climate finance such as through issuance of green, resilience or blue bonds*
-

Case study: Chile 2019 Financial Strategy on Climate Change.

Case study: Acumen Resilient Agriculture Fund provides blended finance to increase use of technology for resilience among farmers in Africa.

Case study: Cape Town Green Bond in response to financing need stemming from 2015-2017 drought.

Case study: Fiji Sovereign Green Bond with more than 90% of proceeds allocated to climate resilience.

Central banks and other regulatory agencies should:

- **Regulate** CRR exposure of financial institutions, including insurance companies.
- Develop **appropriate tools** for the supervision and mitigation of CRR in the financial system.
- **Scenario Analysis and Stress Tests:** assess the short-term impact of climate events on financial institution's balance sheets, including banks, insurance companies, pension funds, mutual funds and brokerage houses.
- **Inclusive prudential framework:** integrate CRR into supervision by setting up relevant risk management and governance expectations.
- **Developing taxonomies:** enable financial intermediaries to measure and disclose its CRR, providing a basis for entity-level and regulatory rebalancing of CRR exposure.

A **comprehensive CRR disclosure system in the private sector** is needed to assess the levels of CRR and sources of vulnerabilities.

- **Public Disclosure:** The Task Force on Climate-related Financial Disclosures (TCFD) has developed such a system for companies.
- **CRR as business risks:** Enterprise risk management, business continuity planning, scenario planning are some approaches to help companies identify and assess the relevant CRR.
- **Stakeholders and community engagement:** Stakeholder engagement helps companies understand their key environmental and social impacts, build support for their operations, and develop innovative solutions.
- **Internal capacity building:** Companies should raise awareness and train employees, ensure that board members are informed, engage outside experts as appropriate, integrate climate strategies into core business processes, work with supply chain partners, develop internal champions, and secure executive level commitment.

Case study



New Clark City Water and Wastewater Infrastructure

Project and Mandate Overview

Country	Philippines	Name of Private Partner	Primewater, Tahal Consulting, Prime Asset Ventures and MGS Construction consortium
Sector	Urban Development	Size of Project	PHP10 billion
Name of Public Sector	Bases Conversion and Development Authority (BCDA)	Timeline (From Mandate Date)	10 months to Commercial Close

Commercial close: 2018



Project Background and Description

- ❖ Development of environmentally sustainable, smart and disaster resilient water and wastewater infrastructure and services
- ❖ Incorporates smart features including advanced water and wastewater treatment, advanced metering infrastructure, effluent reuse, etc.



Scope of Work

- ❖ Transaction advisor to BCDA
- ❖ Assisted in project structuring, market sounding, tender preparation and tender management



Key Structuring Points

- ❖ Joint venture structure for stronger public sector oversight
- ❖ Water conservation and resiliency promoted through rigorous KPIs for water access and quality, wastewater influent and effluent quality as well as smart measures for groundwater preservation
- ❖ Innovative tariff regime



Holistic ADB approach

- ❖ OP PP was supported by Sustainable Development and climate Change (SDCC) Department and Urban Climate Change Resilience Trust Fund (UCCRTF) in reviewing and enhancing the NCC Master Plan through capacity support such as in developing the Resilience Framework and the River Study Plan



Impact

- ❖ Sustainability and climate resilience embedded in its design and implementation
- ❖ Introduction of operational expertise and global best practices
- ❖ Doubles as a disaster coordination zone for the country, including for COVID-19
- ❖ Highly competitive, lowest tariff rate in the Philippines: PHP9.45/m³

New Clark City Power Distribution Infrastructure



Marubeni

Kansai Electric Power
power with heart



Project and Mandate Overview

Country	Philippines	Name of Private Partner	Meralco, Marubeni, Kansai Electric and Chubu Electric consortium
Sector	Energy	Size of Project	PHP6.3 billion
Name of Public Sector	Bases Conversion and Development Authority (BCDA)	Timeline (From Mandate Date)	13 months to Commercial Close

Commercial close: 2019



Project Background and Description

- ❖ Development of future-proofed smart-grid and sustainable power services
- ❖ First fully underground power distribution system in the Philippines
- ❖ Incorporates smart grid features, such as advance metering infrastructure, smart transformers, SCADA, etc., through future-proofed design



Scope of Work

- ❖ Transaction advisor to BCDA
- ❖ Assisted in project structuring, market sounding, tender preparation, tender management and legislative franchise application



Key Structuring Points

- ❖ Joint venture structure for stronger public sector oversight
- ❖ Green initiatives pursued through renewable power sourcing requirements
- ❖ Highly competitive rate: the winning bidder was selected based on lowest power distribution tariff for the initial period



Holistic ADB approach

- ❖ OPMP was supported by Sustainable Development and climate Change (SDCC) Department and Urban Climate Change Resilience Trust Fund (UCCRTF) in reviewing and enhancing the NCC Master Plan through capacity support



Impact

- ❖ Sustainability and climate resilience embedded in its design and implementation
- ❖ Lowest distribution tariff in the Philippines (PHP0.6188/kwh)
- ❖ Positive example to encourage firms to locate in New Clark City

Integrating climate & disaster-related risks can change the future

- **Ensuring the alignment of investment systems towards climate goals** is an essential way to address the impact of climate change.
- While CRR may be managed at the project level, key stakeholders of infrastructure **must not lose sight of the systemic implications.**
- **Any failures to manage CRR in public investment planning will be costly** and such costs will eventually be borne by the governments, taxpayers, and the public.
- The outcomes of such CRR management in public finance management will be **consequential towards the larger global objectives** of meeting the Paris Agreement and Sustainable Development Goals.



Thank you!

