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AI and Predictive Early Warning: Importance for Development Finance

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The Current Protection Gap

Increasing natural hazards

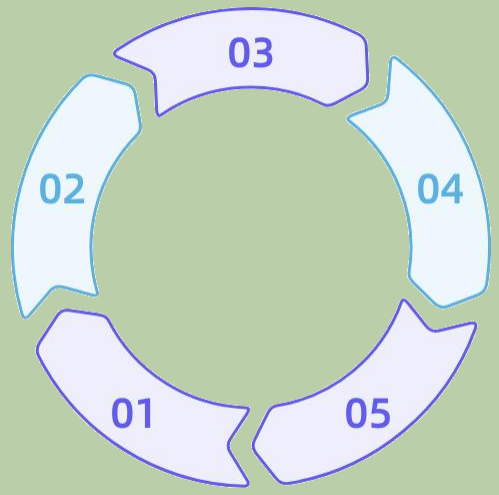
Weather and climate-related hazards are becoming more frequent and extreme against the backdrop of climate change and global warming.

Huge economic loss

Economic losses from natural catastrophes in 2024 reached USD 318 billion, or 0.3% of global GDP. This is up from 10-yr average of USD 254 bn.

Importance of Early warning system (EWS)

The warnings and forecasts by EWS enable early action and efficient resource allocation to minimalize the damage caused.



Majority of loss still uninsured

Insurance helps - but with over 57% loss uninsured globally in 2024, it still presents a significant protection gap. APAC region is lagging even further with 12% of insured loss.

Significant protection gap

The protection gap for natural catastrophes poses a serious challenge, leaving communities vulnerable and recovery efforts underfunded.

Closing this protection gap is essential to strengthening resilience, protecting livelihoods, and building back better.

Emerging financial solutions

In addition to property insurance, these instruments aim to close the protection gap by diversifying and managing environmental event risks effectively.

Catastrophe Bonds

- Financial instrument that transfers catastrophic risk to investors, who **receive high yields** but may **lose their principal if a specific disaster occurs**.
- **Non-correlation with traditional financial markets**: performance linked to natural disaster events rather than economic cycle.

Parametric Insurance

- **Trigger payouts when specific conditions are met**, such as certain levels of rainfall or wind speed.
- **Quick payout** - traditional insurance requires a usually lengthy process for an expert's assessment or debate over the actual loss incurred.

Weather Derivatives

- Contracts hedging against risks from adverse weather conditions, crucial for industries sensitive to climate variability.
- Standardized contracts, or weather futures, can also be traded on an exchange. Future exchanges in China are pioneering the development.

Challenge: Gaps in data limit traditional risk models

Data Gap

Traditional risk models cannot accurately assess risks, especially in the backdrop of shifts in the environment and difficult disaster forecasting.

Challenges for insurers

Insurers face growing challenges in distinguishing between insurable and uninsurable risks due to inadequate tools, leading to increased decision uncertainty.

Risk pricing challenge

Accurate risk assessment is fundamental, yet current technologies fall short in comprehensively analyzing complex environmental events.

Data precision

The lack of high-precision datasets undermines risk model reliability, compromising the scientific basis for insurance product design and pricing.

The un-insurability and its consequences

Uninsurable Risks

- Risk of extreme losses has increased well in excess of historical events and this risk is difficult to estimate and to price reasonably
- As result, insurance have sharply higher premium and reduced coverage

Economic Impact

- Uninsured losses exacerbate economic instability, affecting recovery post-disaster.

Social Disparity

- Lack of insurance disproportionately impacts vulnerable populations, widening social inequalities.

Opportunity: AI X Early Warning System to bridge the gap

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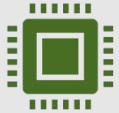


AI-enhanced data processing

AI enables efficient analysis of vast weather and climate patterns, environmental factors, and loss records to uncover hidden risk correlations

Predictive risk modelling

AI leverages deep learning to analyze historical disaster data, predicting future event types and magnitudes for significantly improved risk evaluation accuracy

Real-time monitoring capability

AI-enabled platform (ex. MAZU-Urban) delivers near-instantaneous tracking, providing immediate environmental feedback to enable early warnings and rapid response

Decision support systems

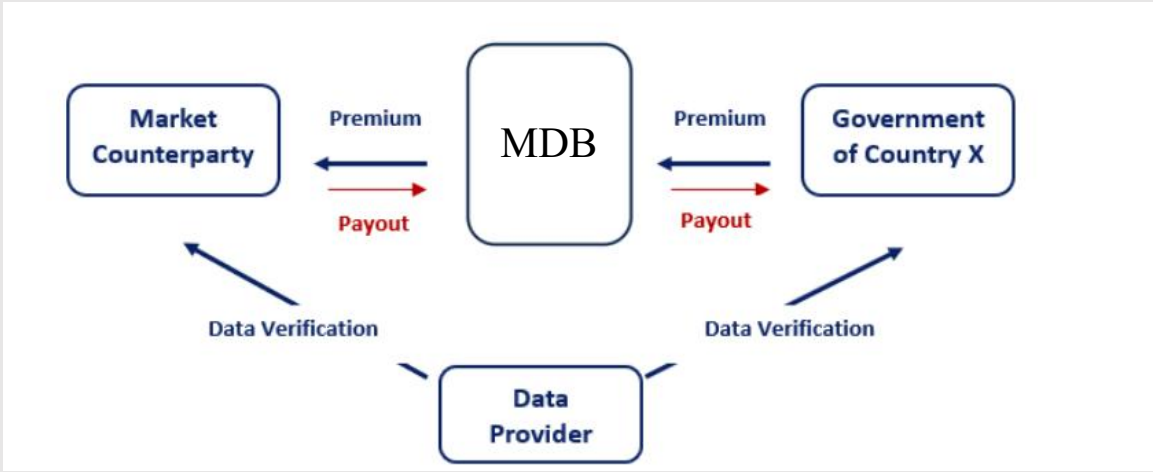
AI-powered analytics enable financial institutions to price risks with greater accuracy, delivering more reliable investment guidance for market participants

MDB Bridging Sovereign Climate Risks to Capital Markets

MDBs could de-risk sovereign climate finance by connecting member states with institutional investors through standardized instruments.

- **Market Architect**:
  Establish common documentation, legal and operational framework, and accessible to all member countries.
- **Financial Intermediary**:
  Absorbs counterparty risk via offsetting contracts with private markets, enabling payouts .
  Ex. WBG's Ethiopia's $50M drought trigger (2023).
- **Capacity Builder**:
  Trains sovereign clients to independently manage risk post-transaction.

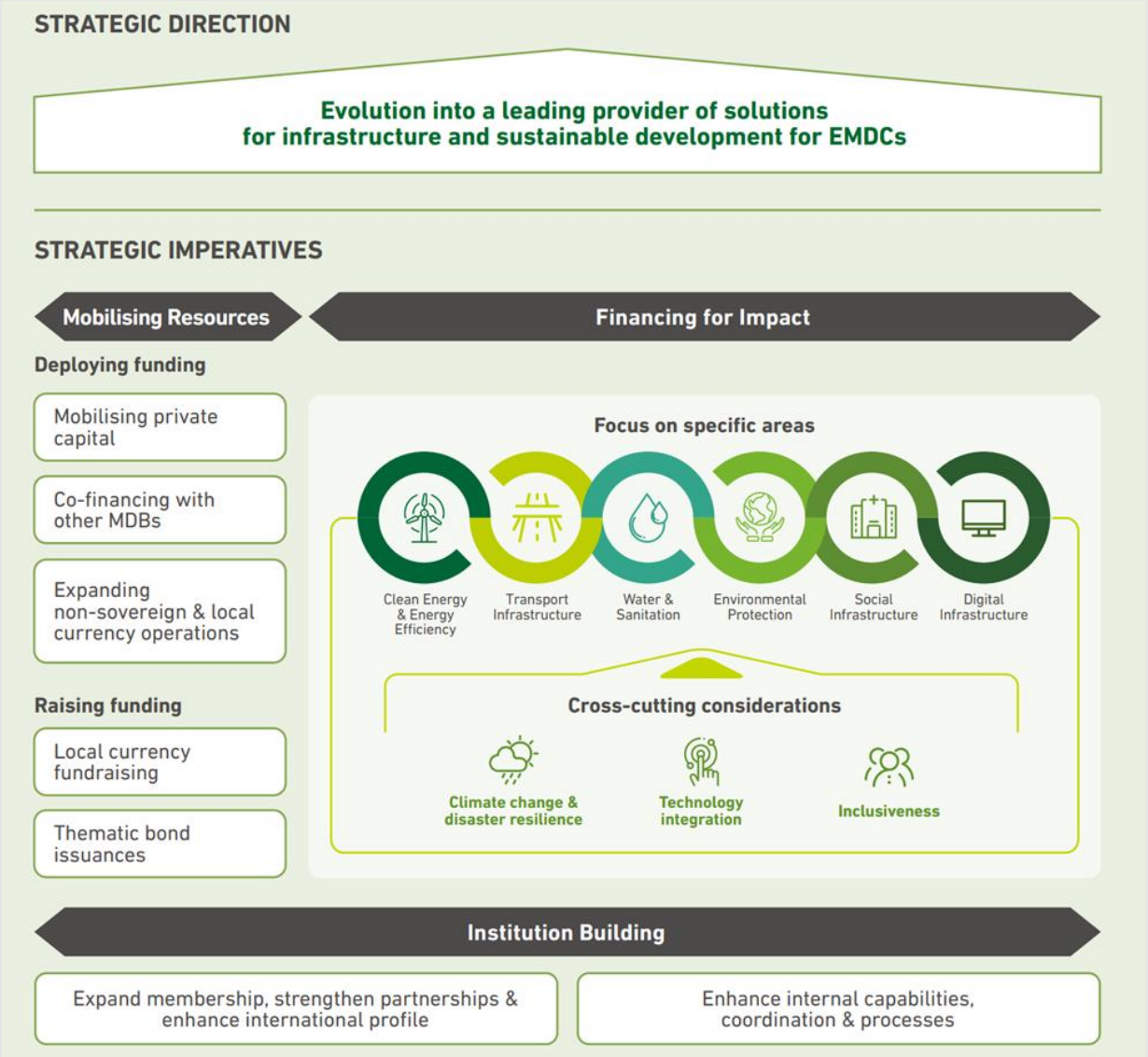
The World Bank's MultiCat Program: using catastrophe bonds to insure against natural disaster risks[1]



Source: World Bank Group

About New Development Bank

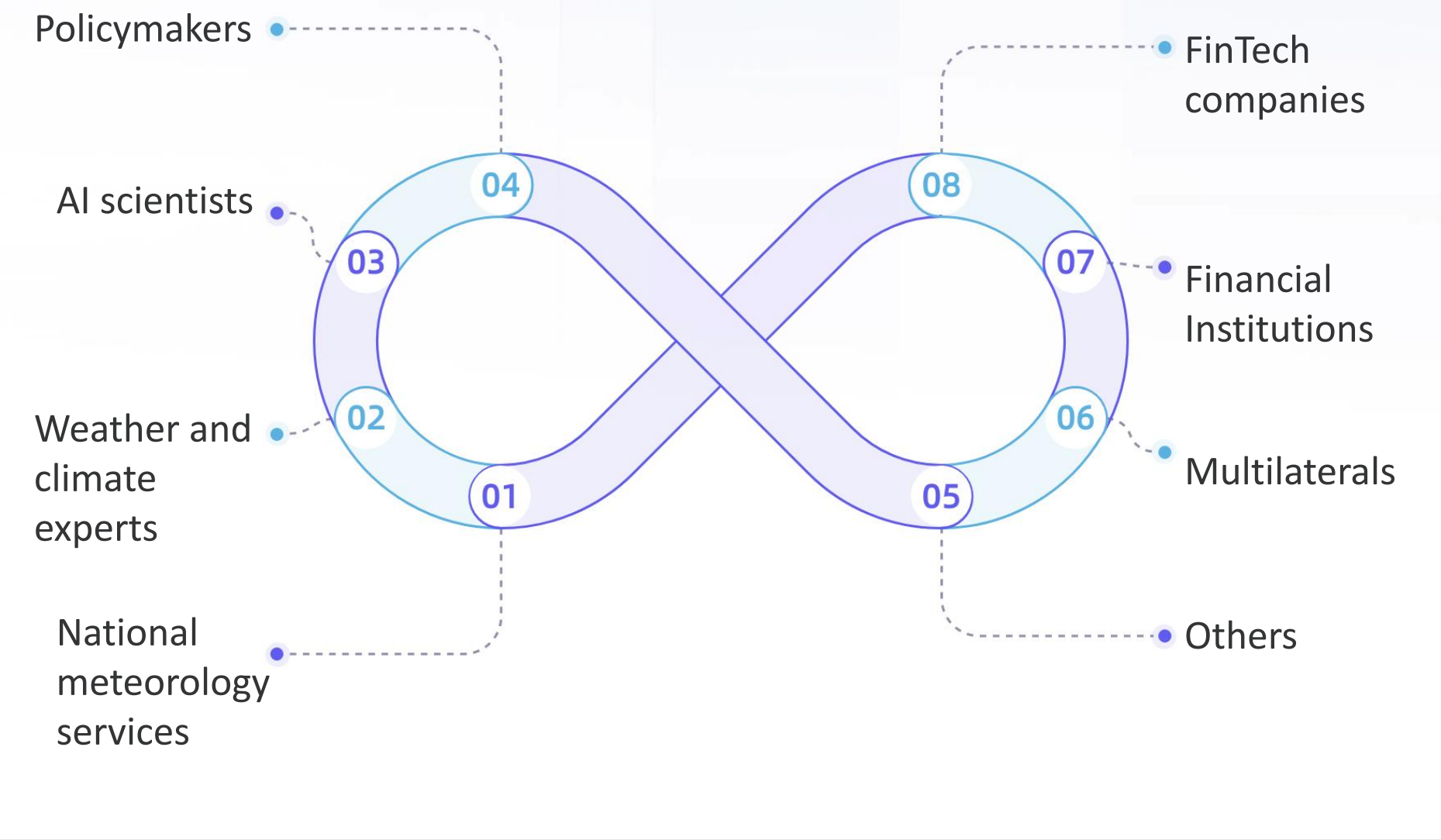
- Founded in 2015 by **Brazil, Russia, India, China, and South Africa**. Additional members: Bangladesh, Egypt, UAE, Algeria, Columbia and Uzbekistan.
- Headquartered in **Shanghai**, with regional offices in Brazil, Russia, India, and South Africa.
- Goal: financing **sustainable infrastructure** projects in NDB member countries
- Growing Portfolio: **120** projects approved with total amount of financing reaching nearly **$40** billion USD
- **Six** strategic focus sectors and **three** cross-cutting considerations



1. EMDCs: emerging market economies and developing countries.

Source: General Strategy for 2022-2026

Call for collaborations: Building an Equitable Resilience Ecosystem



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