

Climate Change Adaptation Finance

Driving the acceleration of new financial mechanisms
through IT to bolster societal resilience

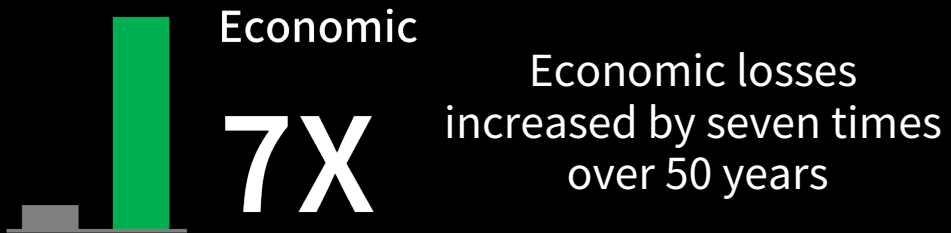


Correlation between climate change and economic growth

Strengthening climate change adaptation measures is most important for protecting human lives, society and the economy.



Economic losses due to natural disasters

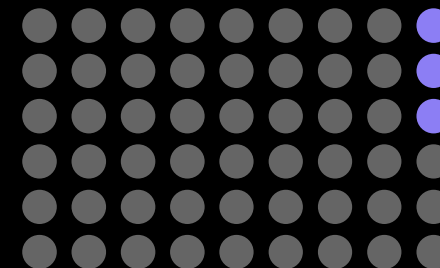


While high-income nations experience substantial economic losses during disasters, they manage to safeguard their citizens' lives through effective risk management. In contrast, low-income countries, including those in the developmental stage, often suffer from insufficient disaster risk management, resulting in a significant loss of human lives.

This underscores the global necessity for support and assistance.

Source: World Meteorological Organization (WMO)2021 Annual Report /BBC)

Investment into "Mitigation" and "Adaptation"



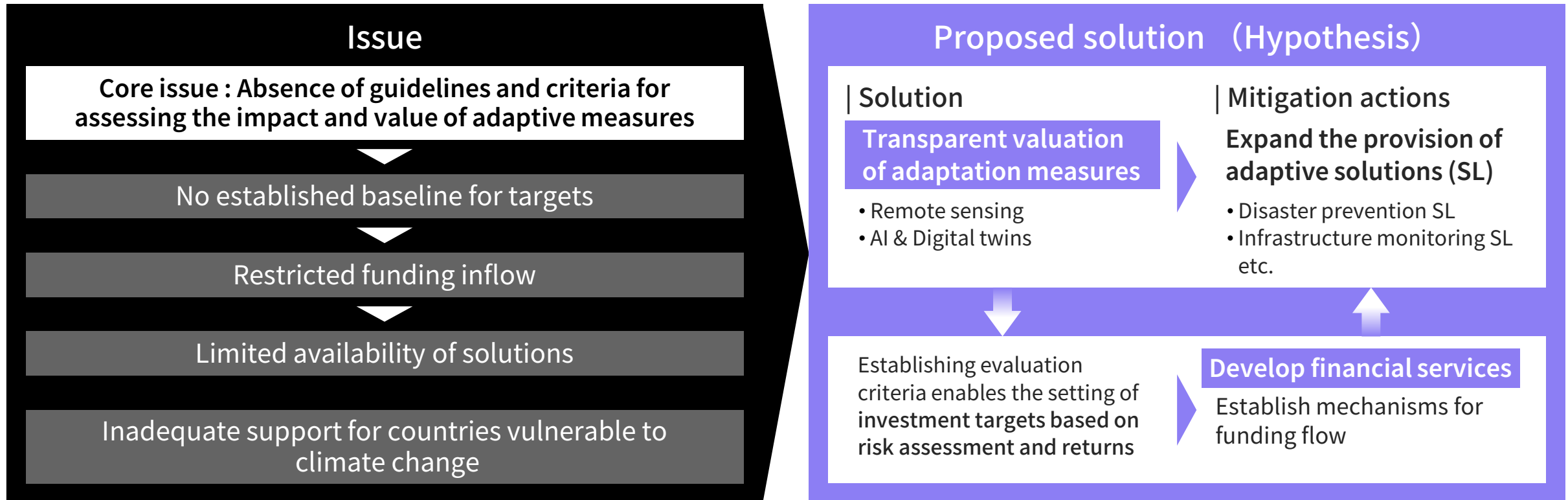
Only **1/18** of investment into Adaptation in comparison to Mitigation

The figure is created based on Climate Policy Initiative "Global Landscape of Climate Finance 2020"

Source: Ministry of the Environment

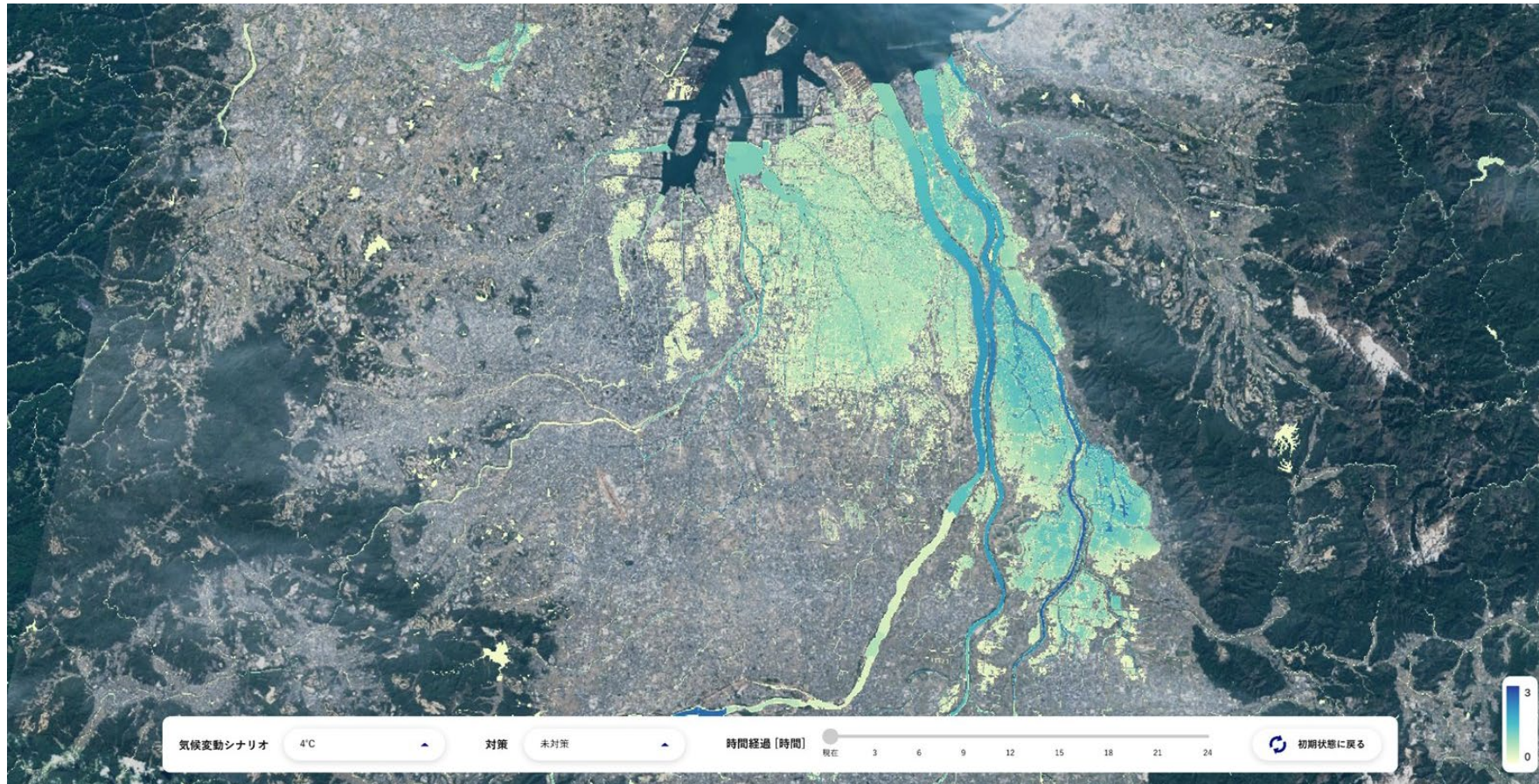
Solution proposal

We aspire to **establish global standards** for visualizing disaster risk and evaluating the effectiveness of disaster risk reduction measures, while also **defining criteria** for assessing the value of adaptive solutions. Our goal is to **implement these standards** and bolster the economics behind them. By clearly defining investment objectives, quantifying cost-benefit ratios, and enhancing transparency in investment risks, we aim to **stimulate capital inflow into adaptation measures**.



Disaster Digital Twin (under development)

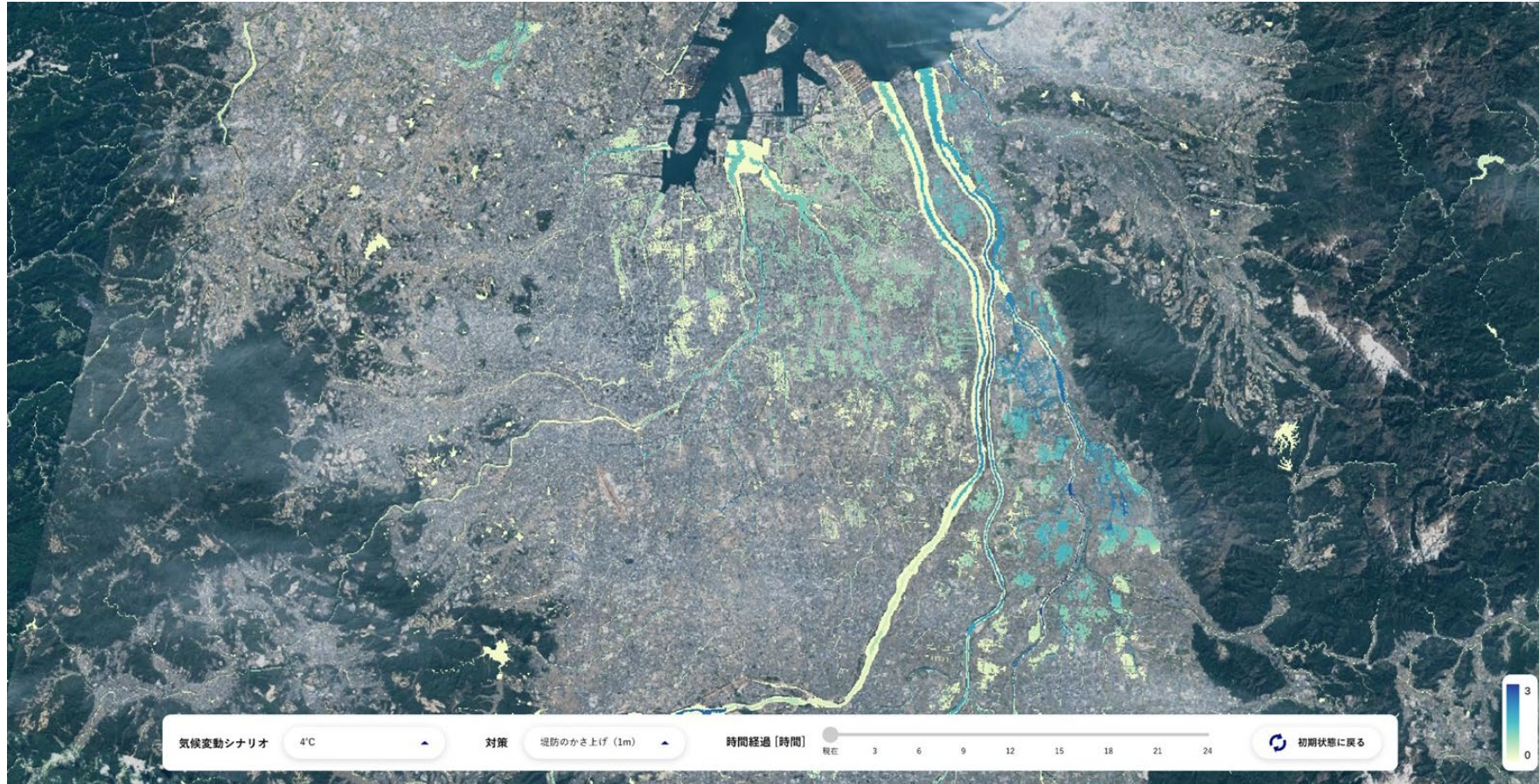
Digital twin simulation of flood damage for +4 °C scenario



Simulator development :
Institute of Industrial
Science,
the University of Tokyo,
Gaia Vision Inc.,
NEC Corporation

Disaster Digital Twin (under development)

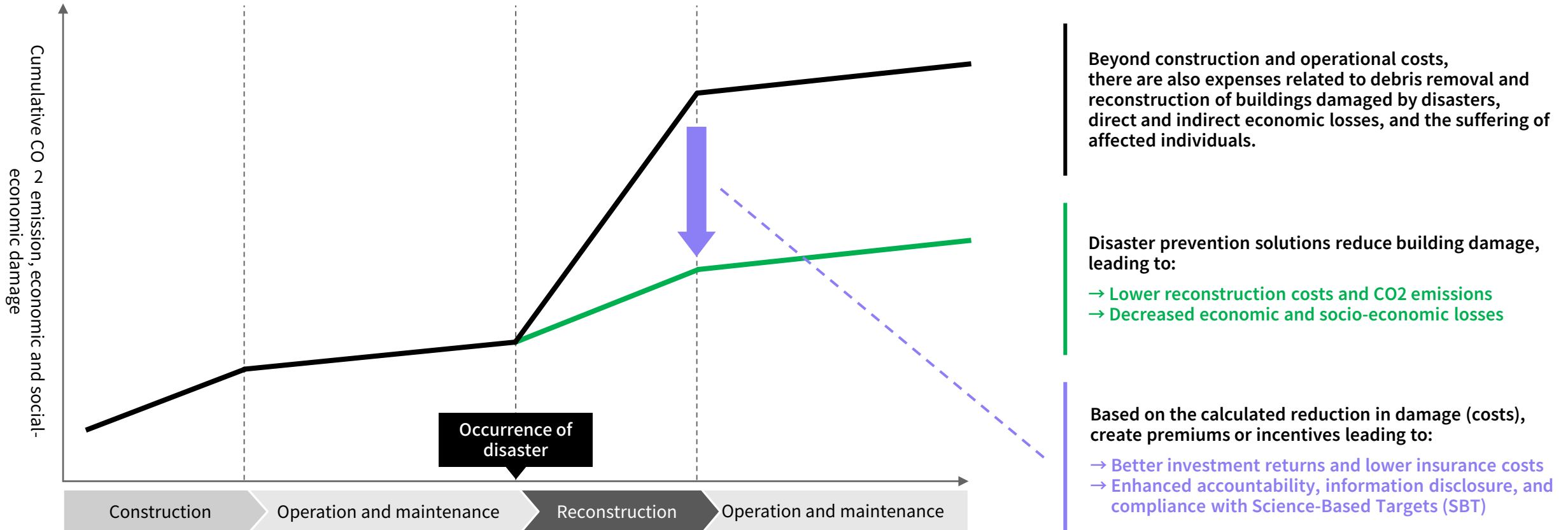
Simulation of flood damage reduction with 1-meter height levee along the river



Simulator development :
Institute of Industrial
Science,
the University of Tokyo,
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Proposal of “Climate Change Adaptation Finance”

We calculate the mitigation effects on disaster damages, including carbon value, social-economic value, and economic value, through our disaster prevention solutions. Leveraging methods like derivatives and insurance, we transform these assessments into premium financial products that can be traded.



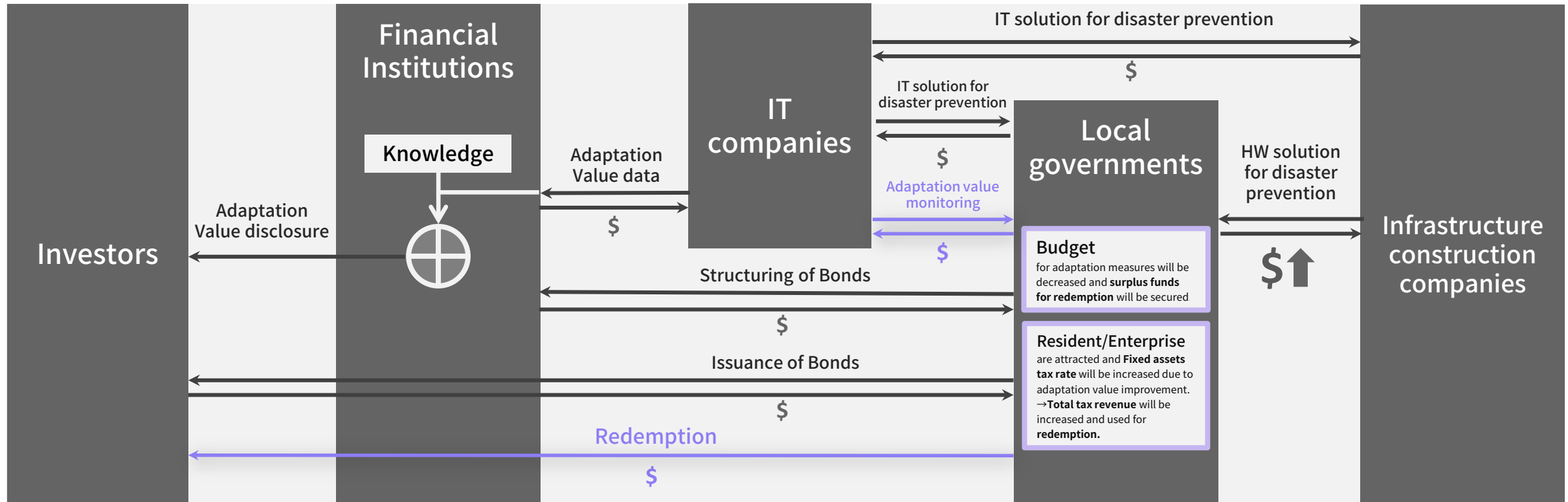
Examples of creating new funding mechanisms

Proposed idea for a forest fire monitoring system financed by fire insurance



New adaptation finance approaches

Surplus funding for redemption will be generated thanks to budget reduction of local governments or tax revenue increase, and meantime IT companies will keep monitoring adaptation value KPIs with technology to ensure adaptation measure works.



Creation of new funding mechanisms through clarification of criteria

Four approaches to accelerate adaptation and build a resilient society
by merging Digital Twins with finance



Bonds

Mitigation of landslide
and flood damage

Storms and droughts

Japan, North America,
and Global South



Investments and financing

Extreme weather events
Global South



Fire insurance

Early warning and
reduction of forest fire
spread

Southeast Asia
and North America



Property insurance

Mitigation of landslide
and flood damage

Storms and droughts

Japan, North America,
and Global South

Call For Action

We propose four ideas to accelerate adaptation and build a resilient society by merging Digital Twins with finance. Our goal is to collaborate with everyone here to expedite the journey from concept validation and demonstration to practical societal implementation.

FY23		FY24			
3Q	4Q	1Q	2Q	3Q	4Q
Engage with participants	Polish ideas and form projects	Prepare for demonstrations	Conduct demonstrations and identify challenges for implementation	Announce collaborative achievements and Call for Action at COP29	Accelerate and expand social implementation activities