World Bank Group Report Launch:
Financial Protection of Critical Infrastructure Services

Risk Financing Programs for Critical Infrastructure Services – Financier's perspective

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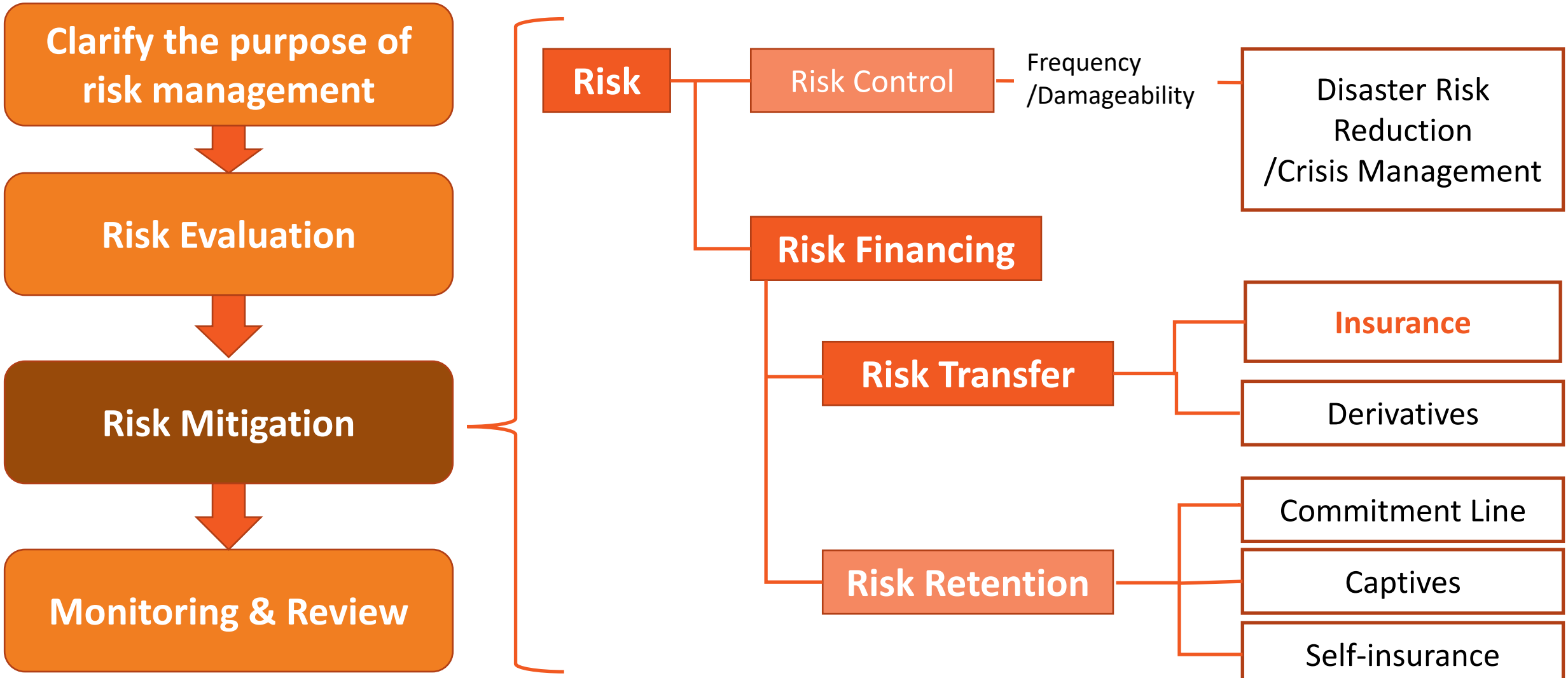
TOKIO MARINE NICHIDO

Risk Financing as a Component of Holistic Risk Management

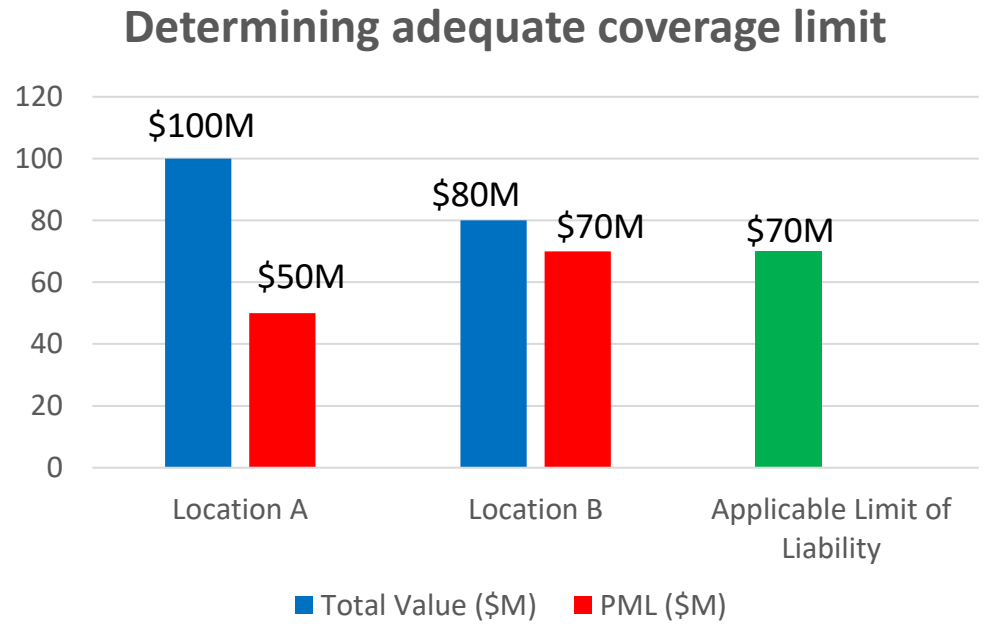


Probable Maximum Loss Analysis for Physical Damage

- Clarify the purpose of risk management
- **Risk Evaluation**
- Risk Mitigation
- Monitoring & Review

Benefits of PML Evaluation

1. Per location PML helps the insured structure a cost-effective risk financing program.
2. It also helps the insured identify which location needs to be prioritized in terms of risk mitigation.
3. Enables benchmarking against industry peers or other municipalities.

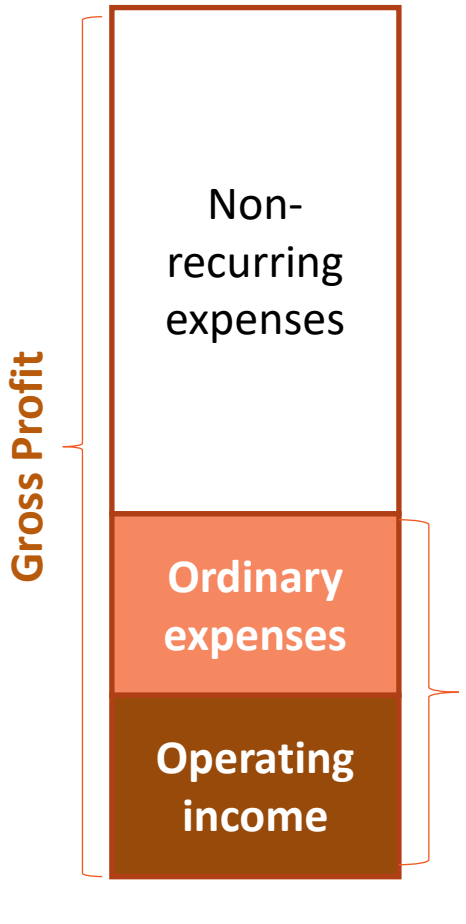


Probable Maximum Loss Analysis for Business Interruption

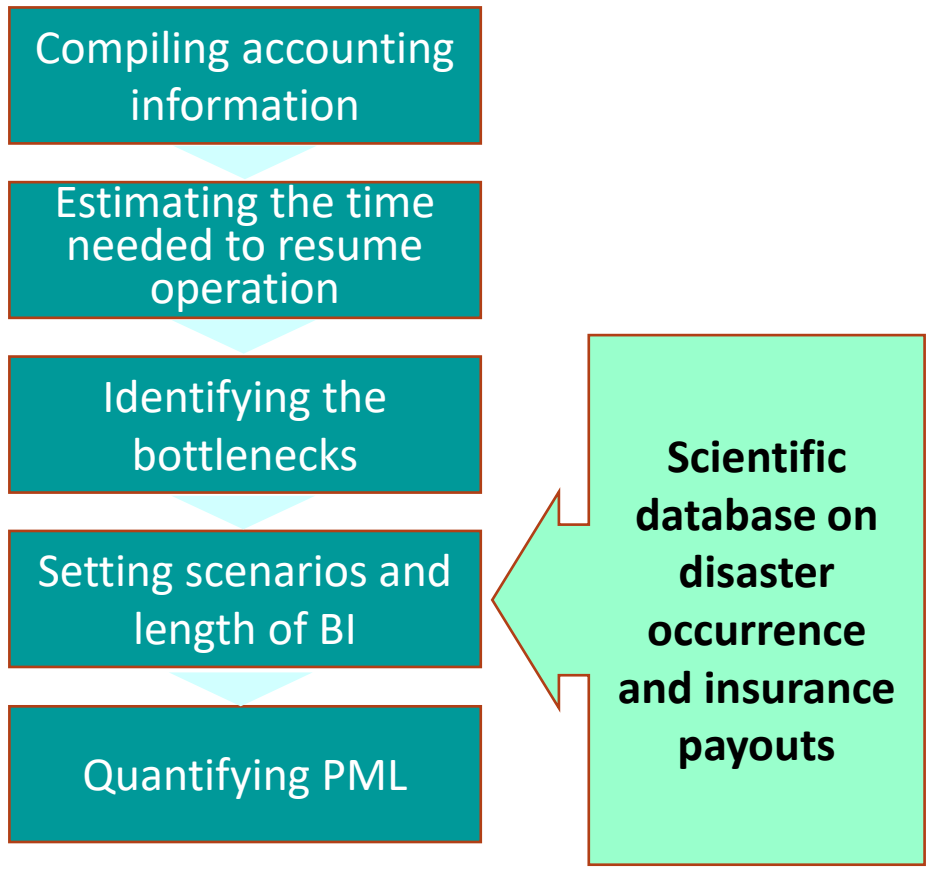
- Clarify the purpose of risk management
- Risk Evaluation
- Risk Mitigation
- Monitoring & Review

How PML for business interruption is evaluated

How business interruption impacts the financials



Flowchart of evaluation



Case Study 1: Airport Facility Services

Typhoon Jebi (No.21) affecting Kansai International Airport (September, 2018)

- Wind-driven high tide flooded the runways.
- Power outage in the terminal building.
- A tanker cast adrift by strong winds collided with the bridge connecting with the mainland, causing gas supply disruption and stranding travelers.

(MLIT)

Case Study 1: Airport Facility Services

An Earthquake PML analysis for an airport facility

Selected Earthquake Scenarios	Seismic Intensity	PML ($M)
An EQ with an excess probability 10% for the next 50 years	7	300
Epicenter A: M 8.1	6+	50
Epicenter B: M 8.6	7	700

- The above PML estimates led the airport management to hedge its earthquake risk with an earthquake derivative contract tailored for the account.

Case Study 2: Power Generation Facility Services

Typhoon Faxai (No.15) (September, 2019)

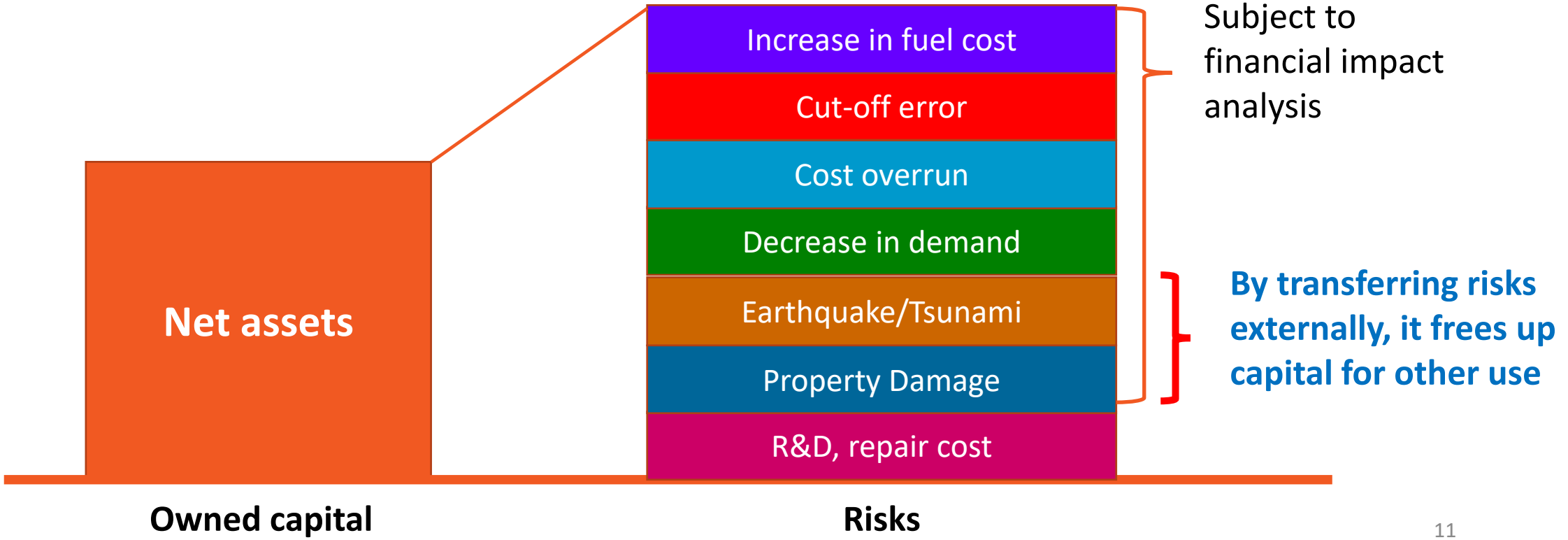
- Typhoon Faxai seriously impacted the power grid system and caused massive power outage.
- The case prompted the discussion on energy resiliency.

(TEPCO Power Grid)

Case Study 2: Power Generation Facility Services

What risk financing means for power producers

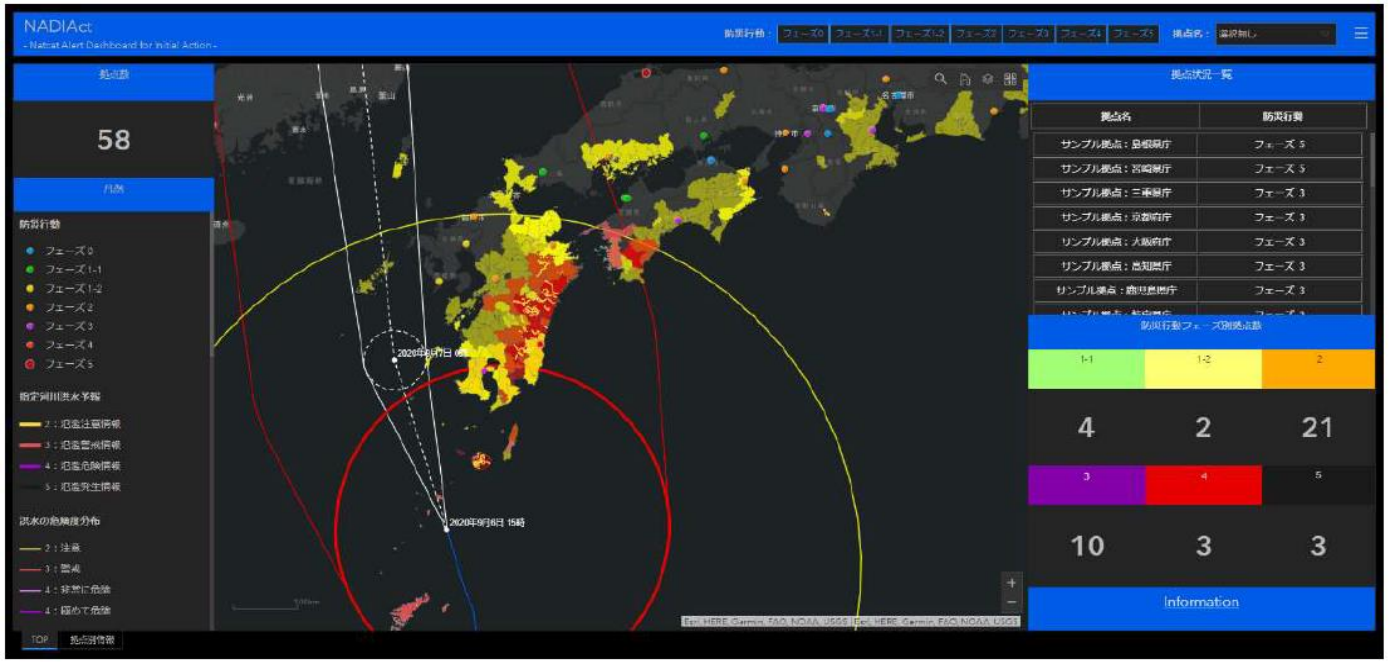
- By transferring disaster risks, power producers can make the most of its capital.
- Defining maximum affordable risk retention level would help power producers design optimal risk financing program.



Case Study 3: Enabling real-time disaster response

Key features of NADIAct (Natural catastrophe Alert Dashboard for Initial Action)

1. Real-time display of disaster conditions throughout Japan
2. Displays recommended initial action in the face of disasters
3. Offers advices on day-to-day disaster response to corporates/local municipalities



(Tokio Marine Holdings)

Conclusion

- Traditionally, public/critical infrastructure has been largely uninsured for disaster risks.
- Given the increasing threat of natural disasters as well as the national budgetary constraints due to the ongoing fight against pandemic, the need for cost-effective risk financing is on the rise.
- The accumulated knowledge of and technological advancements made by the private sector insurance companies is underutilized.
- By promoting public-private collaboration, insurance companies can contribute more to enhance societal disaster risk resiliency.