Analysis to Action:

An Executive Education Program on Disaster Risk Finance in Asia

15 to 19 August 2022
Lee Kuan Yew School of Public Policy
National University of Singapore

WORKBOOK

Name: _____

Lee Kuan Yew School of Public Policy
National University of Singapore

Disaster Risk Financing & Insurance Program
Supported by World Bank Group

SEADRIF
Southeast Asia Disaster Risk Insurance Facility

Completing the Workbook

Throughout the program, we will encourage delegates to capture their thoughts and action points in this workbook. The aim of the workbook is to support your learning process, safeguard knowledge that is specific to you, and save the conversations and insights you gain during the event for easy recall when you return home.

These will be referred to during the reflection points at the end of each day, when the group will be asked to share what they have learned ('key takeaways') from each session.

You will be given dedicated time to fill in your workbook each day, however people often find it easiest to do this after each session while the information is fresh in mind.

The workbook is an important resource for taking back to your day job, and ensuring the commitments you made in this program continue long after you have completed the program.

During the program, if a term is presented that you are not familiar with and that is not included in this glossary then please take a note of this and inform your Faculty member.

Why We Can't Wait

About the Program

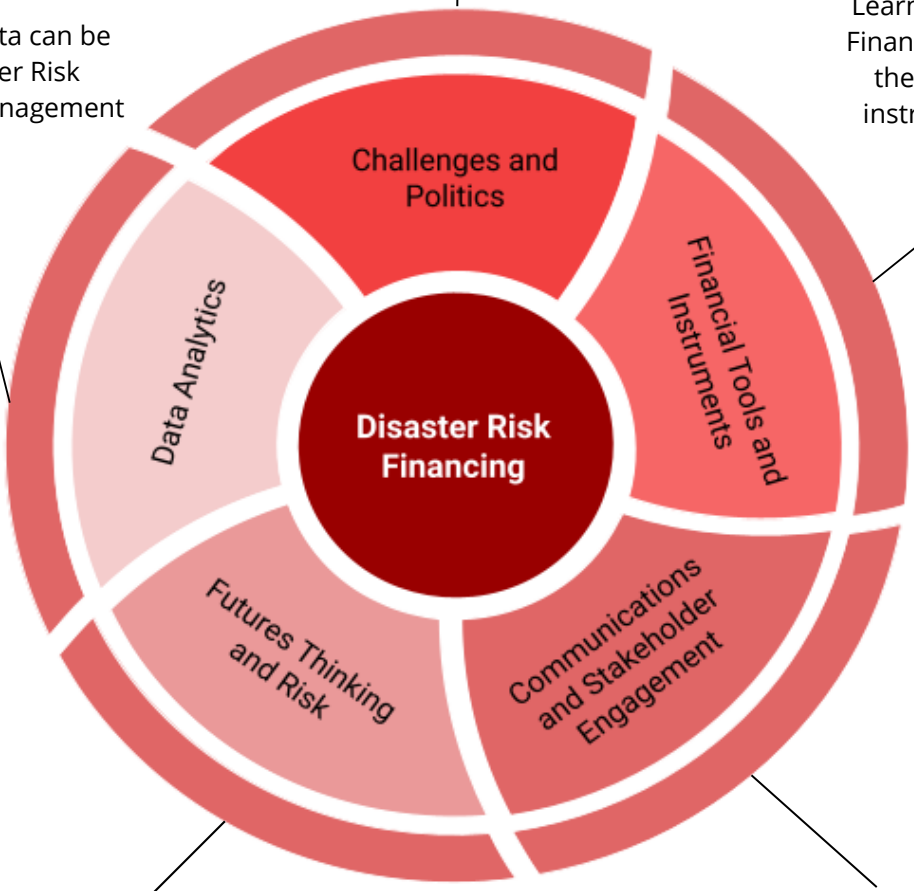
Governments cannot afford to wait until a disaster strikes to start looking for the funds to respond. Without sufficient financial planning, disasters force countries to take away funds meant for investments in education, health, and infrastructure. Climate change increases the frequency and intensity of extreme weather events such as floods, typhoons, and droughts. Compounding shocks from natural disasters and the COVID-19 pandemic will put further strains on already limited fiscal space. Governmental organizations, particularly Ministries of Finance will need to plan for disaster risk financing both in the short and long term.

The program will enable participants to understand and apply disaster risk finance tools and principles within their own national contexts. Participants will have the opportunity to learn and exchange knowledge with peers and draw on practical examples and best practices to strengthen the financial resilience of governments, households, farmers and the most vulnerable. The program aims to develop a shared understanding of the impact of natural and other disasters on countries and explore new approaches that contribute to a more financially resilient economy and society in the ASEAN+3 region.

Program Objectives

1. Enhance understanding of Disaster Risk Financing, DRF, strategies and instruments for protection from natural disasters, embedded in the broader fiscal and risk management frameworks
2. Facilitate knowledge sharing and best practices on Risk Financing solutions relevant for ASEAN+3 countries
3. Build the skill set to design and implement DRF strategies
4. Understand how to implement policy decisions to operationalize DRF across various sectors

Program at a Glance



DAY 1
15 AUGUST 2022

Day 1: Monday, 15 August 2022

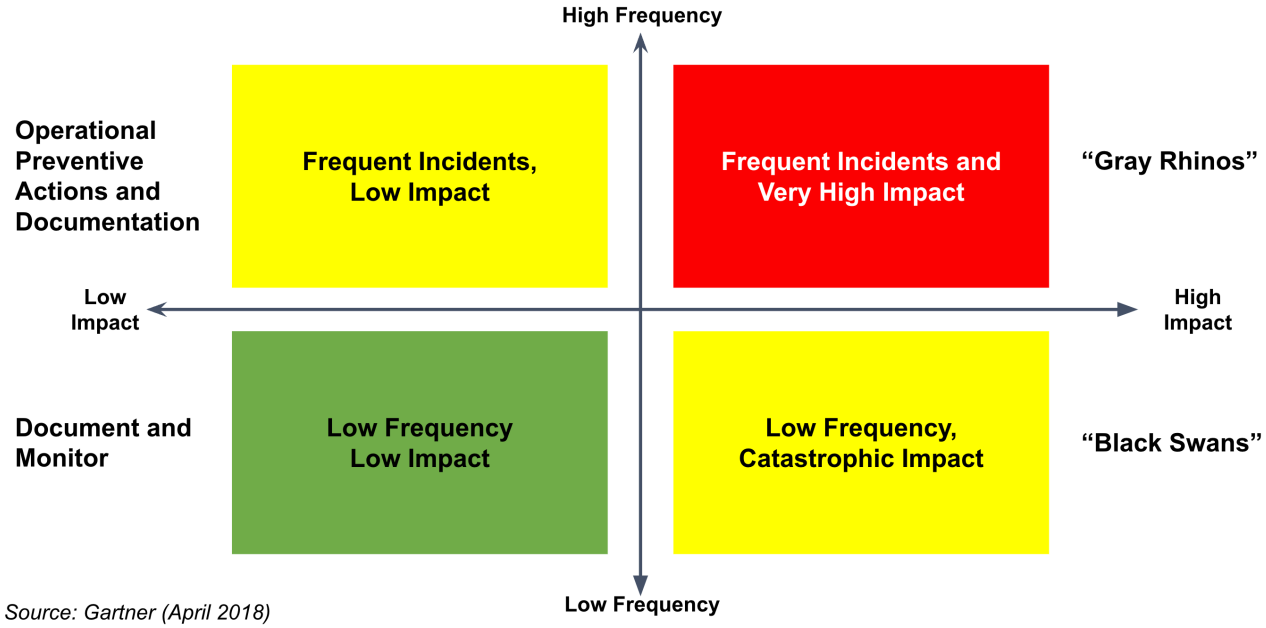
Setting the Context of Disaster Risk Financing (DRF)

Aim: To develop an understanding of the current context and situation with regards to disaster risk management, and understand the importance and need for it.

Session 1: Challenges and Actions in Disaster Risk Financing in SEA

Vinod Thomas

Classifying the Risk Landscape



Source: Gartner (April 2018)

Class Discussion 1: SEA's Response to Pandemics

Southeast Asian countries, on average, are ranked at the upper third mark of WHO's 2019 Global Health Security Index for 195 countries across six categories — prevention, detection, rapid response, health system, norms (standards), and the risk environment. The global average score is only 40.2 out of 100, and Southeast Asia is 48.3. Thailand ranks 6th globally and Singapore 24th, with an overall score of 58.7. Laos places 73rd, Cambodia 89th, Philippines 53rd, and Viet Nam 50th.

Using the framework of probability and impact (for example), identify the top gaps in their preparedness for a pandemic.

How would your priorities for action differ across the two countries?

What constraints do you need to overcome in going from recommendations to action and results on the ground?

Class Discussion 2: Consider one Southeast Asian country and its disaster risk management, including disaster risk finance, to deal with hazards of nature.

How would you rate the country's preparedness in comparison to others and with itself overtime, differentiating between crisis management and risk management?

How do you see their funding gaps, or the difference between disaster-related contingent liabilities and the funds from disaster-related financial instruments?

What organizational considerations would top your "to do" list ?

How do you see the role of education, capacity development, negotiations, communication help mainstream PRF in your country?

Class Discussion 3: What are your top priority investments and why?

Class Discussion 4: World Bank loan to Philippines for Haiyan

The World Bank's Haiyan Response included US$500 million budget support loan to finance overall recovery and reconstruction. There was an additional US$480 million loan for a national community driven development project, which would help typhoon affected areas build infrastructure and social services.

A rapid assessment (GIS, rapid structural assessment with JICA) was built in. The program included global expertise for disaster recovery planning. This new program was linked to an ongoing DRM program.

How would you put together the rapid assessment and what principal constraints would you confront as a priority?

How would you put together the rapid assessment and what principal constraints would you confront as a priority?

What features would you build in to improve the chances that the proceeds of the loan are well used and that the project delivers on its promise?

Notes / Key Takeaways:

Session 2: Politics and Disaster Response - Case Studies from across Asia

Caroline Brassard

Group Discussion: From your experience, what factors influenced who gets what during funding allocation (National vs International funding)

How has Covid-19 impacted Disaster Risk Financing in your country?

Which of the five (5) barriers to decision making resonate with you? Why?

Barriers to Effective Decision Making:

- Political
- Analytical
- Operational
- Social
- Bad Luck!

Which of the Proactive Policy-Making strategies do you think can be adopted in your country?

Barriers to Effective Decision Making:

- Building on Existing & Creating Networks
- Understanding Perceptions and Behaviours
- The Role of Incentives in Rewarding Behaviours
- Improving Information Flow
- Ensuring Accountability
- Community Resilience

Notes / Key Takeaways:

Session 3: Master the Disaster Game

Kaavya Ashok Krishna

Write down your reflections from the simulation.

Note 3 key insights from the simulation.

Reflect on 1 emotion you felt while going through the simulation.

Other Points to Note:

Session 4: Innovations in DRF from across Asia

Presentation by Clients

What are some of the key learning points you have gained from the sharing by the different speakers?

Are there any approaches or lessons shared during the presentations useful for your own country? How so?

Day 1 Syndicate Group and Discussion

What are some of your key learning inspirations from today? List three or more if possible.

What do you hope to apply or act upon after learning and reflecting on today's discussions?

DAY 2
16 AUGUST 2022

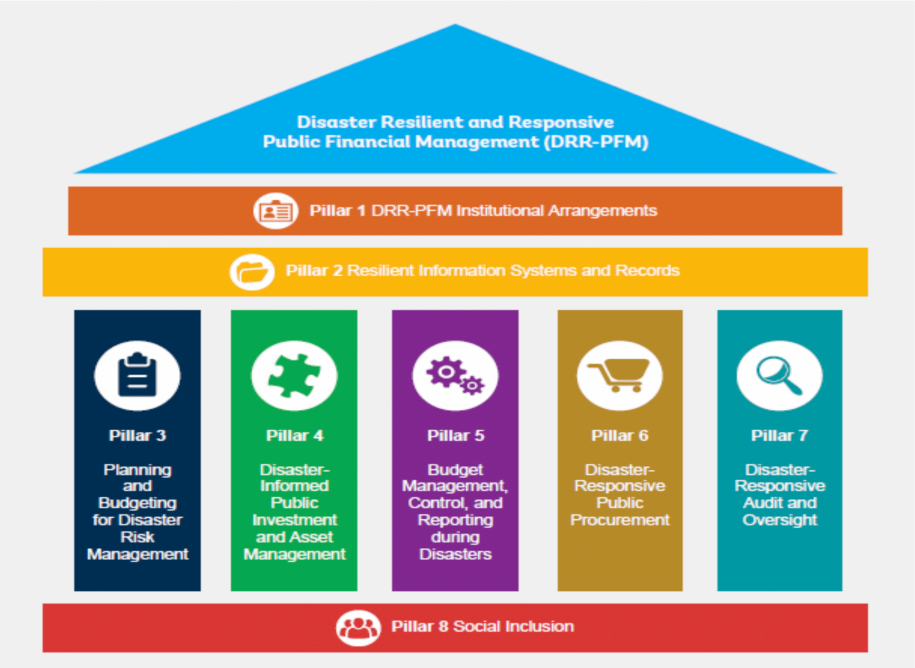
Aim: To reinforce the basic principles of public finance and management as well as to introduce participants to policy instruments that can be adopted to mitigate disaster risk.

Session 5: Public Finance Management

Terence Ho

What are the key takeaways you have gained from today's session on Public Finance Management? Please list up to three.

Public Finance Management (PFM) Pillars



Which of the PFM pillars do you think are the highest priority (please pick up to three) for your country/region and why?

What are some learning points from Singapore's COVID-19 response? Can any of these be applied in your country's disaster preparation and public finance management?

Other Points to Note:

Session 6: DRF Instruments Roundtable

World Bank Group

Which of the Disaster Risk Financing (DRF) Instruments resonate with you the most? Why?

Which instrument(s) is/are applicable to you and your country? How will you apply it/ them?

Notes / Key Takeaways:

Session 7: Case Study 1: Managing Ill Winds: The Disaster Risk Financing Response to Typhoon Yolanda

Jun Jie Woo

What were the key challenges that the government of the Philippines faced during Typhoon Yolanda?

Were existing disaster financing frameworks adequate for addressing Typhoon Yolanda? Why or Why not?

How should government finance disaster response and preparedness efforts?

What are the key principles or practices that underpin effective disaster financing?

How can disaster risk layering help support disaster response and preparedness?

How can governments ensure that the right DRF tools are implemented at different stages of a crisis?

In a post-Covid world, how should governments approach disaster financing?

How can regional and multilateral organisations contribute to disaster risk financing in countries?

Day 2 Syndicate Group and Discussion

What are some of your key learning inspirations from today? List three or more if possible.

What do you hope to apply or act upon after learning and reflecting on today's discussions?

DAY 3
17 AUGUST 2022

Aim: To gain an understanding of risks and how it can be applied to disaster risk financing. Participants will also learn tools that can help them anticipate future risks.

Session 8: Sensemaking and Complexity

Cheryl Chung

What kind of challenges do we face in disaster risk financing in a Volatile, Uncertain, Complex and Ambiguous (VUCA) world?

What kind of challenges do we face in disaster risk financing in a VUCA world?

How do we better understand the complex context in the future?

Notes / Key Takeaways:

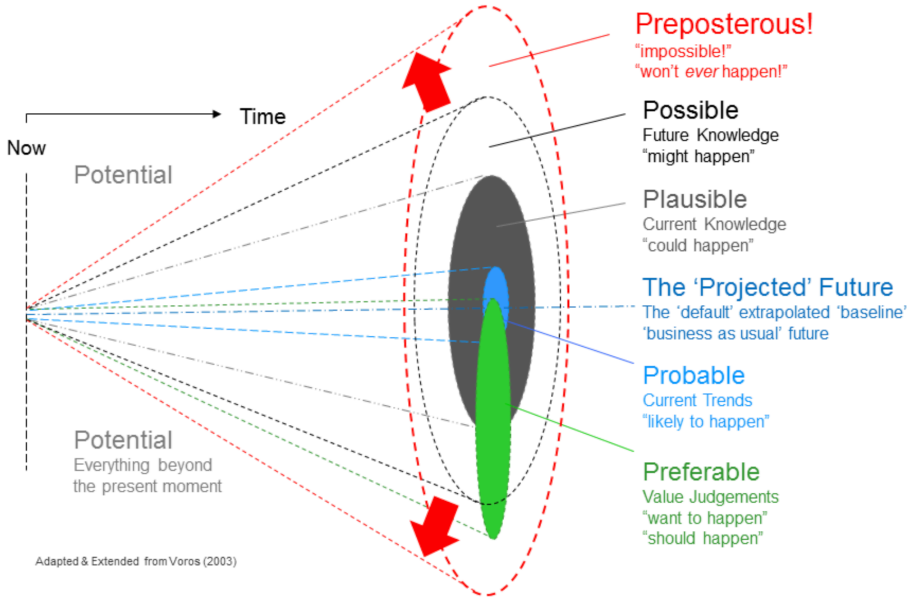
Session 9: Futures Thinking and Scenario Planning

Cheryl Chung

What are some challenges governments face when thinking about the future?

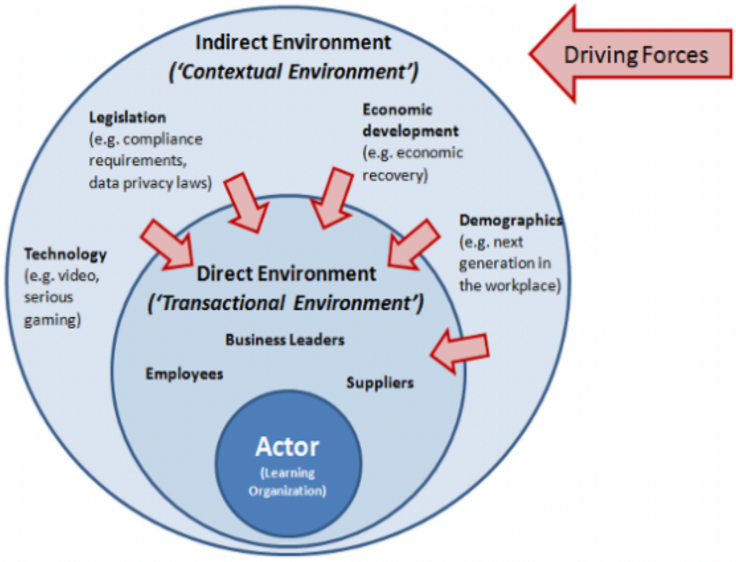
Futures Cone

What if we were wrong?



What are some of the assumptions we hold about disaster risk financing today?

Identifying the Driving Forces

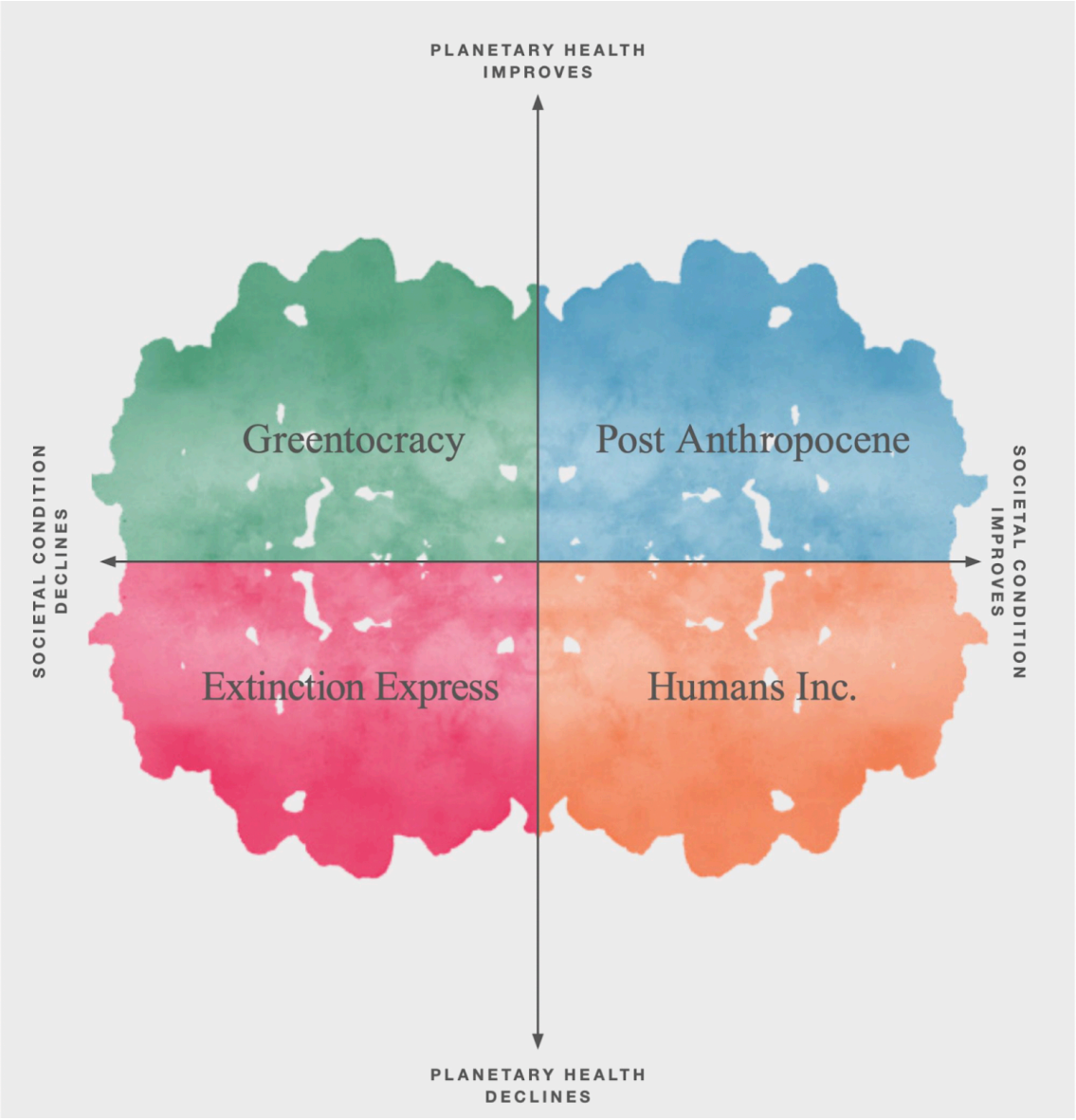


How might these trends affect disaster risk financing?

Four Plausible Futures

- **Post Anthropocene**: “The world of 2050 boasts a balanced biosphere: humanity and ‘spaceship Earth’ are thriving in harmony.”
- **Greentocracy**: “In 2050, societies are highly divided, unequal and suppressed. Most of the Earth’s ecosystems are on a clearly chartered recovery plan.”
- **Extinction Express**: “The mid-21st century is marked by the extensive degradation of planetary and human conditions.”
- **Humans Inc.**: “The world in 2050 is shaped by three decades of gradual societal improvement, coupled with half-hearted environmental stewardship.”

ARUP, 2019



How might disaster risk financing look in each future scenario?

Post Anthropocene	Greentocracy
Extinction Express	**Humans Inc.**

How do you currently allocate your time between the 4 quadrants?
How might you reallocate your time?

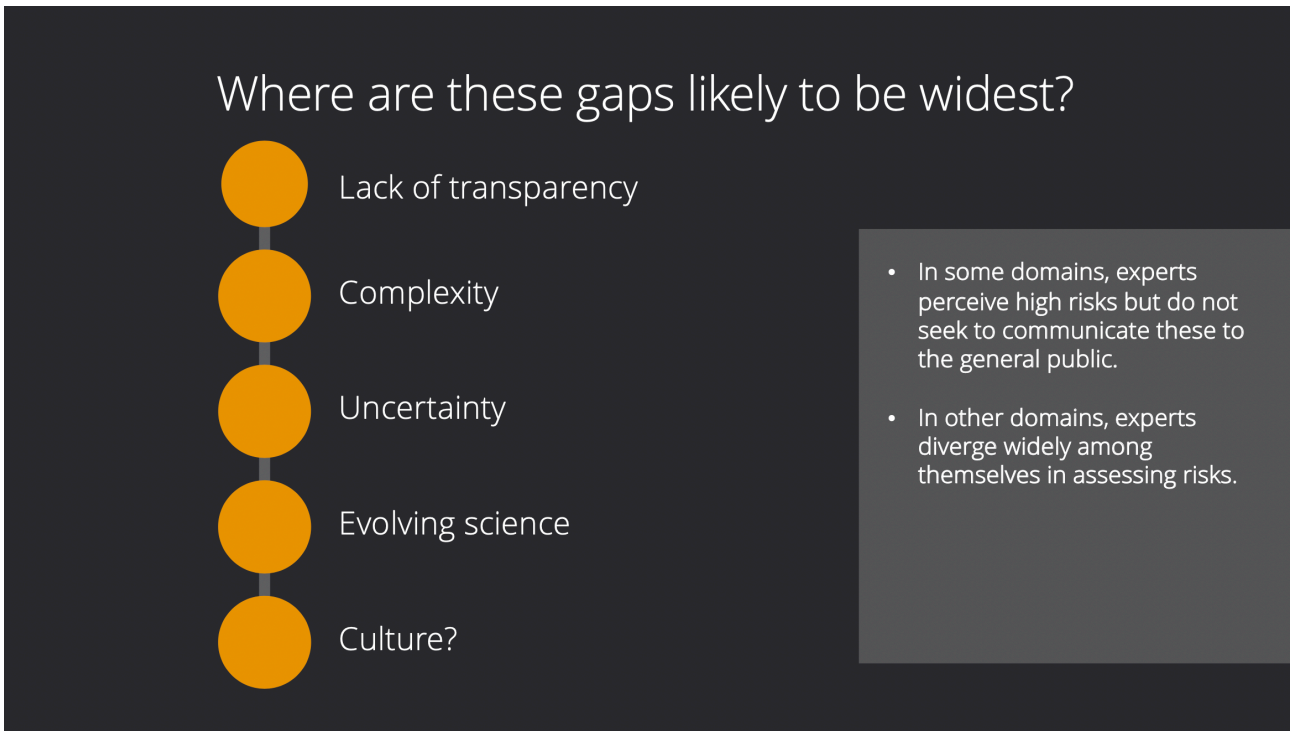
Post Anthropocene	**Greentocracy**
Extinction Express	**Humans Inc.**

Notes / Key Takeaways:

Session 10: Understanding Risk & Risk Communications

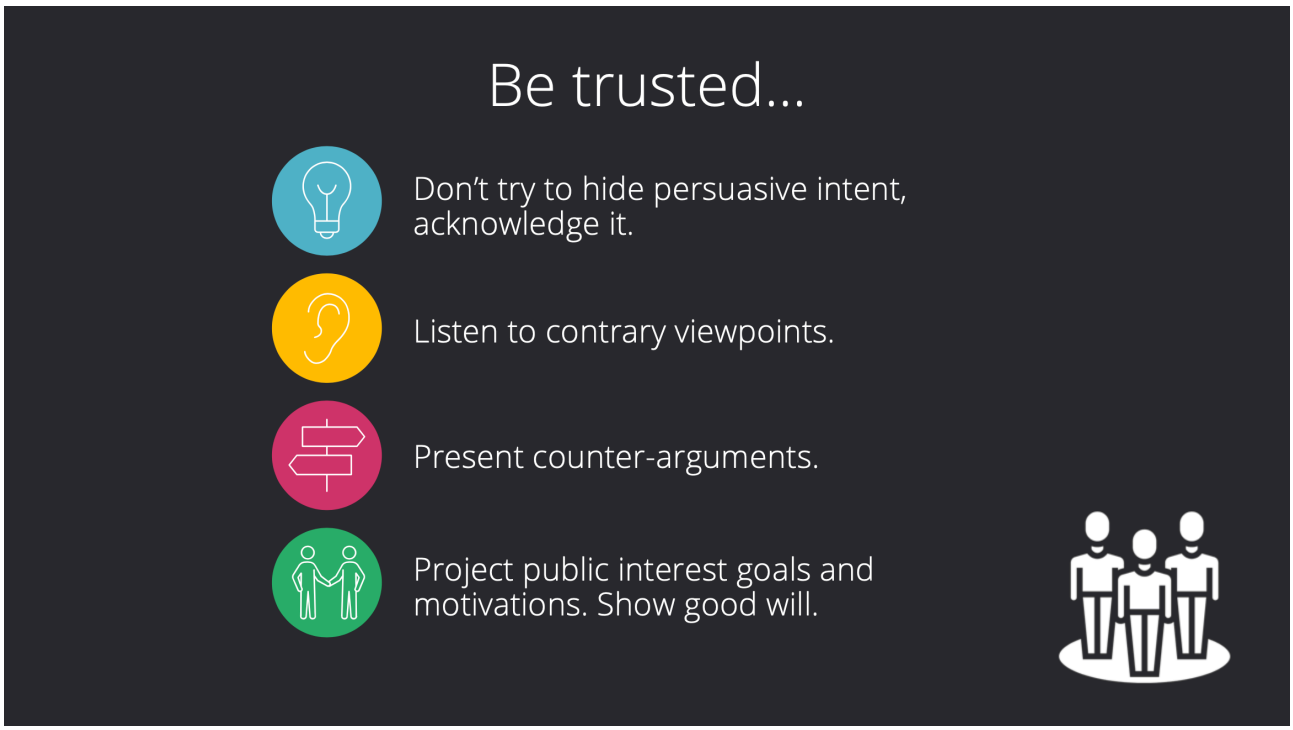
Olivia Jensen

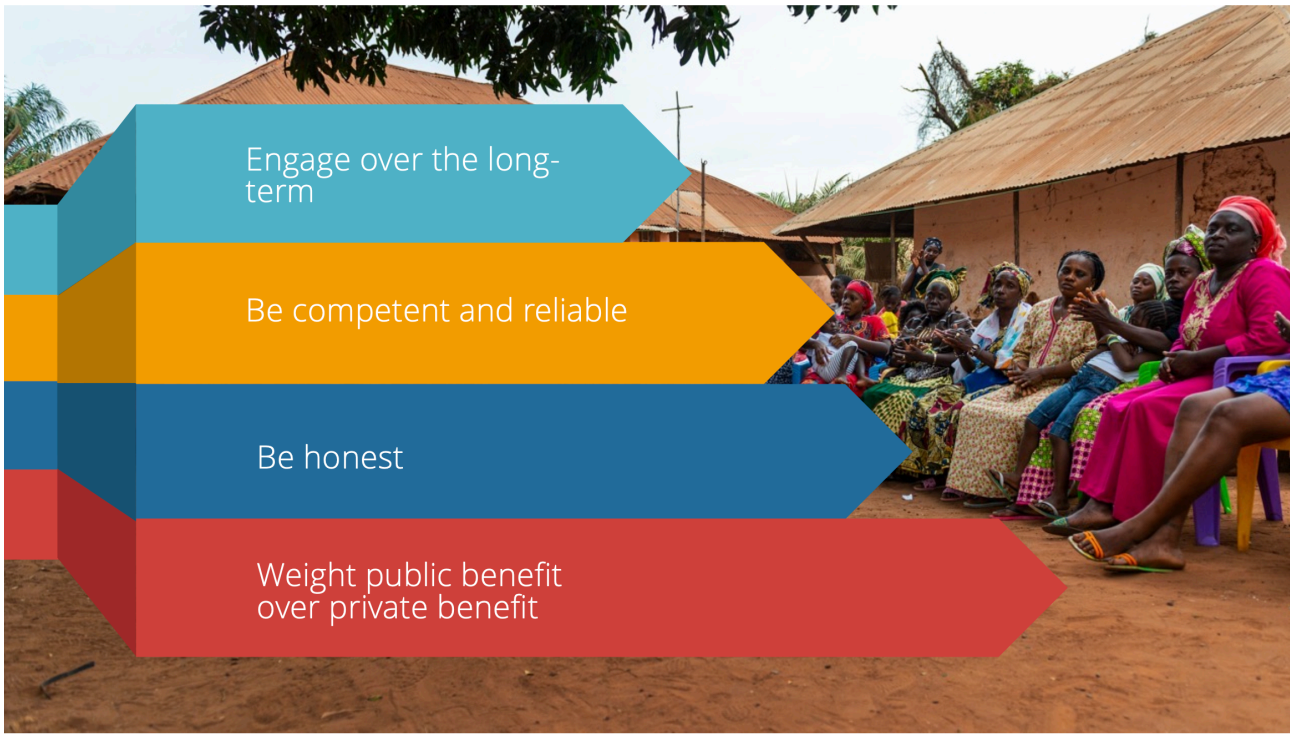
After hearing this session, why do you think the public understanding of risk matters for your country?



Where are these gaps likely to be widest in your society?

Which of the following purposes of risk communication do you resonate with? Why?





Which of the following factors on trust do you resonate with? Why?

Notes / Key Takeaways:

Session 11: Case Study 2: Securing a state against the effects of natural disasters: What to do when conventional insurance is out of reach?

Olivia Jensen

Approximately what percentage of your country's catastrophic risk is currently covered by the following sources of finance? What percentage remains uncovered?

Reserves and contingency funds	Commercial insurance (public of private)	International aid	Sovereign risk transfer	Borrowing

Would risk-pooling offer a reasonable solution for your country? What characteristics would a pool need to have to make it attractive to your country? What aspects would be deal-breakers for you? Would any of the risk pools described in this case be useful to your country? If so, which ones?

Do you think Riskland should join SEADRIF? If you said yes, why? If you said no, what would SEADRIF need to change to make it a feasible proposition? If you were unsure, what additional data would be required for you to make a decision?

Notes / Key Takeaways:

Day 3 Syndicate Group and Discussion

What are some of your key learning inspirations from today? List three or more if possible.

What do you hope to apply or act upon after learning and reflecting on today's discussions?

DAY 4
18 AUGUST 2022

Day 4: Thursday, 18 August 2022

Managing Disaster Risk and Beyond through Data

Aim: To gain an understanding of data analytics for disaster risk management and how it can guide individuals to imagine different scenarios that can guide planning.

Sessions 12 and 13: Disaster Risk Finance Data and Analytics

World Bank Group

DRF Decisions Require Quantitative Analytics

- How do I estimate my fiscal exposure in the event of a disaster?
- Should we set aside funds in a reserve fund, and how large should this reserve fund be?
- Should we seek to establish a line of credit, which can immediately be drawn upon if a disaster were to occur?
- How can we evaluate proposals for risk transfer products such as disaster insurance or catastrophe bonds?
- What is the financial cost of scaling up an existing social protection program?

What is DRF Analytics?

- Combines disaster risk information with financial methodologies and assumptions to support informed decision making
- Bridges the gap between disaster risk data and risk-informed decision making
- Standardized approach of proven statistical and economic methodologies to conduct financial analyses to support governments in fiscal decisions related to disaster risk

What DRF decisions are important to your country that DRF analytics can inform?

What Type of Data Do You Need?

Risk / Loss Data

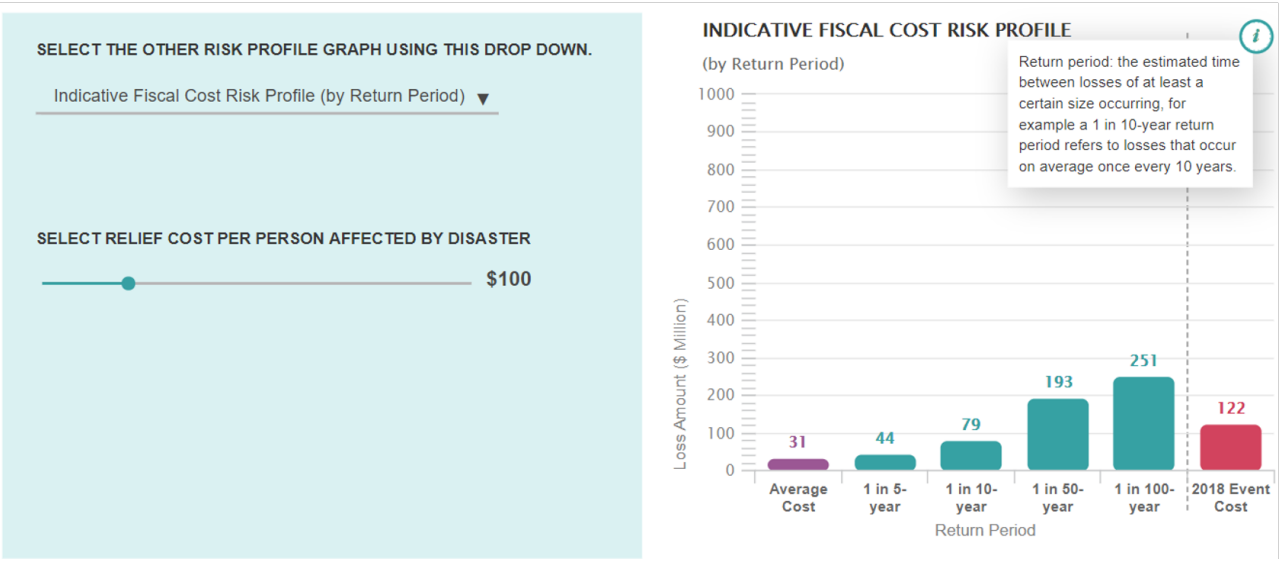
Macro-economic Data

Fiscal / Financial Data

BIG DATA SETS DOES NOT ALWAYS EQUATE TO USABLE INFORMATION

What data is needed to answer the key DRF questions in your country, and where could this data be sourced from?

Exercise One: Fiscal Impact Assessment



The relief cost per person is a Government input that could be estimated using expenditure information from the most recent 2016 event and other available information.

Vary the relief cost per person using the slider to determine the:

- **Estimated average annual cost of disasters; and**
- **Estimated cost of a 1 in 10-year disaster event.**

A. Assuming relief costs of US$50 per person?	B. Assuming relief costs of US$200 per person?

DRF Analytics Exercise Two

Evaluate the following options:

A. Increase in reserve fund to US$50 million;
B. Keep the reserve fund to US$25 million and take out a contingent line of credit for US$25 million;
C. Increase in reserve fund to US$25 million and take out a contingent line of credit for US$25 million and take out an insurance policy for extreme events.

Note: It is assumed that the contingent credit will only be drawn down once the reserve fund is fully used.

What is the impact of this strategy on the funding gap during the: average year, 1 in 10 year, 1 in 50 year?

Would this strategy have provided enough funding for the event in 2018?

How do the outcomes compare across the three strategies?

A: Increase in reserve fund to US$50 million

B: Keep the reserve fund to US$25 million and take out a contingent line of credit for US$25 million
C: Increase in reserve fund to US$25 million and take out a contingent line of credit for US$25 million and take out an insurance policy for extreme events

Exercise Two: Assessing the Funding Gap

This exercise included two alternative insurance options; both of which have an equal cost.

What is the difference between Insurance Option A and Insurance Option B for the Government? What do you notice with the funding gap?

DRF Analytics Exercise Three: Evaluating the Optimal Funding Mix

Use the quantitative tool to evaluate the following scenarios:

A. The insurance cost is low (soft market) and the cost of borrowing is high (concessional rate spread offered is low)

- **No disaster occurs**
- **2018 disaster occurs**

B. The insurance cost is high (hard market) and the cost of borrowing is low (concessional rate spread offered is high)

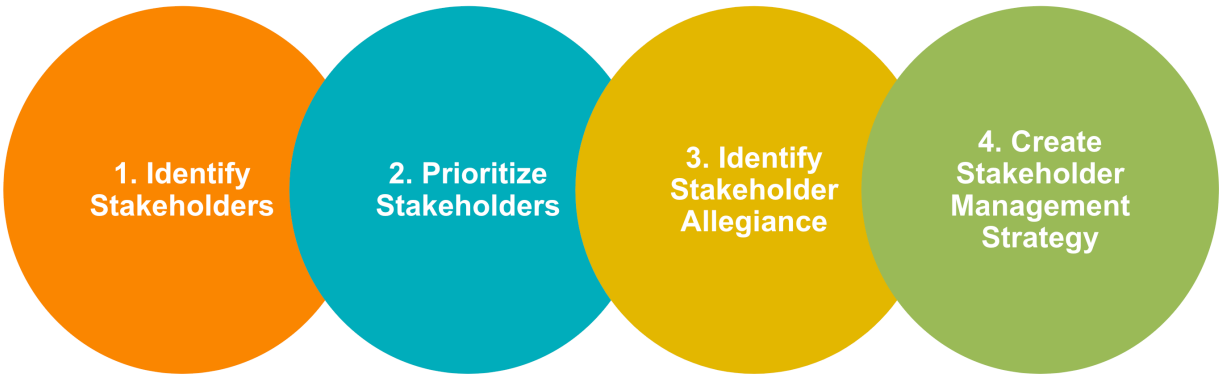
- **No disaster occurs**
- **2018 disaster occurs**

Notes / Key Takeaways:

Session 14: Mapping Your Stakeholders

Francesco Mancini

Stakeholder Mapping Tool



1. Identify Stakeholders

- Think of a particular initiative and list your stakeholders.
- Ask yourself if they are internal (working in your organization) or external stakeholders. This is what we call position.
- What role in this initiative do they play? What interest they have?

DRF Stakeholders	Position (Internal vs. External)	Roles / Interests in DRF (e.g., financial, political, service providers, influencers, affected, etc.)

DRF Stakeholders	Position (Internal vs. External)	Roles / Interests in DRF (e.g., financial, political, service providers, influencers, affected, etc.)

2. Prioritize Stakeholders

Latent Stakeholders

Expectant Stakeholders

- **Power**: Power of a stakeholder to impose its will or interest
- **Legitimacy**: Socially accepted and supported
- **Urgency**: Calling for immediate attention

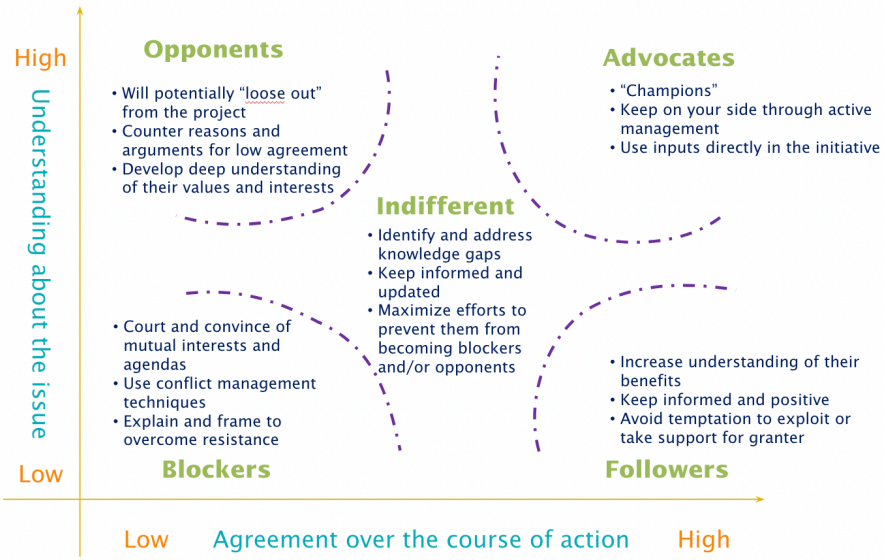
Categories: Powerful, Legitimate, Pressing, Demanding, Dependent, Dominant

Categories	DRF Stakeholders	Positions	Roles / Interests

3. Identify Stakeholder Allegiance

Level of Allegiance	Who They Are
Advocates	• Full support, driving the activity • Active communicators, regularly involved
Followers	• Have a low understanding of the activity but follow the course of action
Indifferent	• Yet to take a definitive position • Not involved, neither support nor block
Blockers	• Show resistance to the activity, mainly due to low understanding and low agreement • They can be driven by lack of communication, interests, fear, ...
Opponents	• High understanding of the issue but low agreement on the course of action • Have "their reasons" for low acceptance and actively oppose

4. Develop Stakeholder Management Strategy



Level of Allegiance	Who They Are
Advocates	• They are "champions" • Keep on your side through active management • Use inputs directly in the initiative
Followers	• Increase understanding of their benefits • Keep informed and positive • Avoid temptation to exploit or take support for granter
Indifferent	• Identify and address knowledge gaps • Keep informed and updated • Maximize efforts to prevent them from becoming blockers and/or opponents
Blockers	• Court and convince of mutual interests and agendas • Use conflict management techniques • Explain and frame to overcome resistance
Opponents	• Will potentially "loose out" from the project • Counter reasons and arguments for low agreement • Develop deep understanding of their values and interests

Notes / Key Takeaways:

Day 4 Syndicate Group and Discussion

What are some of your key learning inspirations from today? List three or more if possible.

What do you hope to apply or act upon after learning and reflecting on today's discussions?

DAY 5
19 AUGUST 2022

Aim: To gain an understanding of strategies and tools that individuals can adopt and use to achieve consensus and understanding from their stakeholders.

Session 15: Case Study 3: Earthquake Commission – The Canterbury Earthquake Sequence and After

Caroline Brassard

Which stakeholder are you representing?	
What **challenges / constraints** are you facing? Any balancing acts?	
What **questions** do you wish to pose to other stakeholders?	
Concluding statement about your **requests / expectations?**	

Notes from Stakeholders

Homeowners	EQC

Treasury	Department of the Prime Minister and Cabinet

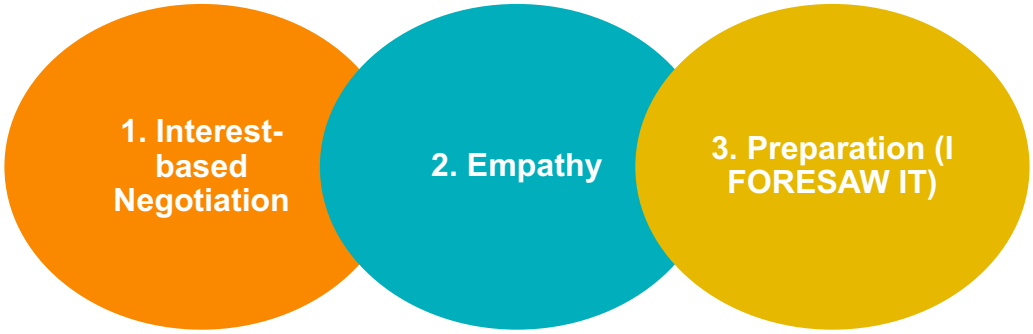
How to ensure mechanisms and structures actively facilitate more coordinated approaches to building resilience?

How should people, systems and processes be mandated, incentivised and rewarded, in quiet times and in crisis?

Notes / Key Takeaways:

Session 16: Mapping Your Stakeholders

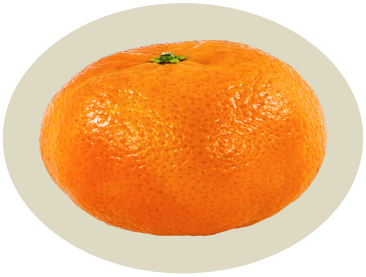
Francesco Mancini



3 Principles to Influence

Which of the principles might be more relevant in your country context?

How will you find a solution to this conflict over one orange between two people?



Can you please write your answer in the workbook and share?

Notes / Key Takeaways:

Glossary of Terms

Term	Proposed Definition(s)
Average Annual Loss (AAL)	The average of expected (or potential) loss over a period of many years; calculated as the sum of all expected/simulated losses over a period of time, divided by the number of years. *Also known as Annual Expected Loss (AEL)*
Budget Allocation	An amount of funding set aside to cover specific planned expenditures.
Budget Reallocation	The process of moving appropriated funds from an existing budget category to another without increasing the total budget; can be used as a budget mechanism to finance disaster-related costs.
Capital Market Instrument	A financial instrument, in the form of debt or equity, that is traded on a securities exchange or directly between investors and borrowers; a capital market instrument is structured in the same way as *reinsurance*, except with investors rather than insurers, providing the protection; it can be used to finance disaster-related costs. Examples are *catastrophe bonds* and *catastrophe swaps*.
Captive Insurance	The arrangement whereby a subsidiary company provides insurance or reinsurance for its parent/owner.
Catastrophe Bond (CAT Bond)	A high-yielding, insurance-linked security providing for payment of interest and/ or principal to be suspended or canceled in the event of a specified catastrophe, such as an earthquake of a certain magnitude or above that occurs within a predefined geographical area.
Catastrophe Model (CAT Model)	A computerized model generating a set of simulated events to calculate losses arising from a catastrophe.
Contingency Fund / Contingency Reserve Budget	A reserve fund designated for financing potential losses; for governments a designated disaster risk fund may be established to cover losses in the event of a natural disaster;
Contingent Credit	A financial tool that provides governments with immediate access to funds following disaster events to enable a more rapid and efficient response. This type of funding is typically used to finance losses caused by recurrent natural disasters. A line of contingent credit is an ex ante instrument that allows borrowers to prepare for a natural disaster by securing access to financing before a disaster occurs.

Contingent Liability	A potential payment obligation (or future expenditure) that may be incurred, depending on the outcome of a future event; in the case of disaster risk for governments, the expenditure may be to pay for emergency response or reconstruction in the event of a natural hazard impact
Coverage Limit	The maximum payout under an insurance policy.
Damage Cost	The replacement value of physical assets wholly or partly destroyed, built to the same standards that prevailed prior to the disaster. Damage occurs during and immediately after the disaster and is measured in physical units. Its monetary value is expressed in terms of replacement costs according to prices prevailing just before the event.
Disaster Risk Finance (DRF)	The field of practice that focuses on managing the financial shocks due to natural hazards with this aim to increase the financial resilience of governments and to protect the livelihoods of the most vulnerable populations; DRF helps to minimize the costs to finance related expenditures and optimize the timing to meet post-disaster funding needs without compromising development goals, fiscal stability or wellbeing. The financial protection of populations against disaster events. Disaster risk finance strategies increase the ability of national and local governments, homeowners, businesses, agricultural producers, and low-income populations to respond more quickly and resiliently to disasters.
Disaster Risk Management (DRM)	The systematic process of using administrative directives, organizations, and operational skills and capacities to implement strategies, policies, and improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of disaster.
Disaster Risk Reduction (DRR)	The concept and practice of reducing disaster risks through systematic efforts to analyze and manage the causal factors of disasters, including through reduced *exposure* to *hazards*, reduced *vulnerability* of people and property, wise management of land and the environment, and improved preparedness for adverse events.
Discount Rate	A rate used to calculate present values of future cash flows. For example, with a discount rate of 5 percent, $1.05 in one year is equivalent to $1 at present.
Diversification of Risk	Having different levels of risk and/or types of risk in different areas, so that if one area is affected by an event, other (unaffected) areas can provide support. In the case of Pacific small island states this is difficult as a hazard event typically affects the whole country and/or several neighbouring countries, meaning there are no unaffected areas from which support can be provided.

Ex ante	Latin for “from before”. In the context of disaster events, ex ante instruments are arranged, and ex ante decisions, are made before an event takes place
Ex post	Latin for “from after”. In the context of disaster events, ex post instruments are arranged, and ex post decisions, are made after an event takes place.
Expected Losses	The sum of the values of all possible losses, each multiplied by the probability of that loss occurring or the estimated loss frequency multiplied by the estimated loss severity, summed for all exposures.
Explicit Liabilities	Explicit liabilities underpinned by some form of legal obligation, for example state guaranteed debts
Exposure	People, property, assets, systems, or other elements that are subject to potential losses.
Fiscal Balance	The difference between general government revenues and expenditures. When revenues exceed expenditure there is a fiscal surplus. When expenditure exceeds revenue there is a fiscal deficit. The ideal fiscal balance is zero – where revenue and expenditure are equal.
Fiscal Funding Gap	The difference between the total funds required and available funds that a government has or can access; in DRF terms, this could be used to describe the difference between disaster-related contingent liabilities and the financing available from disaster-related financial instruments.
Frequency	Frequency is often used to describe how often an event is likely to occur. Events with low frequency are rare (i.e. they have a low likelihood of occurring). Events with a high frequency are common (i.e. they have a high likelihood of occurring).
Hazard (peril/ natural hazard)	Natural process or phenomenon or human activity that has the potential to cause property damage, loss of livelihoods and services, social and economic disruption, and/or environmental degradation. *Also known as peril or natural hazard.*
Humanitarian Aid	In general terms, the aid and action designed to save lives, alleviate suffering, and maintain and protect human dignity during and after man-made crises and *natural disasters*. Such aid may also be used to prevent and strengthen preparedness for the occurrence of such situations.
Indemnity Insurance	An insurance policy that pays claims based on the actual economic losses incurred by the policyholder.
Index Insurance	An insurance policy that pays claims based on an index, indexes are typically chosen to be a good proxy for the economic losses incurred by the policyholder.

Insurance	A practice or arrangement by which a company, investor or government agency provides a guarantee of compensation for a specified loss, damage or event occurring in return for payment of a specified premium.
Trigger	The event that must occur before a particular insurance policy applies to a given loss and causes the policy to pay out; for example, for weather-index insurance a trigger could be the weather measurement that causes the insurance policy to pay out, such as a certain amount of cumulative rainfall.
Liquidity	Liquidity is a measure of the amount of cash or liquid assets (i.e. assets that can be quickly turned into cash) available to an individual or organization.
Loss	The foregone economic flows resulting from the temporary absence of the damaged assets and/or any other disruption of economic activity caused by the disaster.
Natural Disaster	An extreme event leading to loss of lives and livelihoods caused by natural hazards such as tropical cyclones, earthquakes, floods, and landslides.
Operational Budget	Operational (or operating) budget is the part of the budget that includes day to day running costs of an organisation such as travel and consumables. Wages and staff benefits are part of the operational budget but are ring-fenced and cannot be reallocated.
Opportunity Cost	The cost of an alternative use of the finance that must be forgone in order to pursue a certain strategy.
Parametric Insurance	A type of insurance that is triggered by the occurrence of a specific measured hazard event, such as a certain magnitude of earthquake or category of cyclone. This parametric approach is common for catastrophe risk insurance to cover against major hazard events and is an alternative to Indemnity Insurance.
Payout	A payout refers to the amount of liquidity that an insured party will receive following an eligible event.
Premium (Ins.)	The premium is the cost that an insured party will pay for a given level of coverage: the more that is included in the coverage provided, the higher the premium will be; premiums are determined by the amount of coverage a country chooses, the event *attachment point* and *exhaustion point* of that coverage, and the risk profile of the insured party, such as a country in the case of sovereign *parametric insurance*.
Probabilistic Modeling	The process of fitting historical risk data into a probability model to predict future contingent liabilities

Probable Maximum Loss (PML)	The largest loss believed to be possible for a certain type of event in a defined return period, such as 1 in 100 years or 1 in 250 years.
Public Financial Management (PFM)	Steps taken to ensure that public money is spent and accounted for in a clear and transparent fashion. A public financial management system comprises resource generation, resource allocation, and expenditure management (resource utilization).
Reinsurance	A practice in which insurers transfer portions of risk portfolios to other parties in order to reduce the likelihood of having to pay a large obligation resulting from an insurance claim—that is, it is insurance of insurance. Reinsurance helps to smooth extreme results (such as those from catastrophe events) and therefore to reduce the volatility of an insurance portfolio.
Residual Risk	The risk that remains in unmanaged form, even when effective disaster risk reduction measures are in place, and for which emergency response and recovery capacities must be maintained. The presence of residual risk implies a continuing need to develop and support effective capacities for emergency services, preparedness, response, and recovery together with socioeconomic policies such as safety nets and risk transfer mechanisms.
Resilience	Resilience in the context of disasters is the ability of countries, communities and households to manage change, by maintaining or transforming living standards in the face of shocks or stresses – such as earthquakes, drought or violent conflict – without compromising their long-term prospects.
Return Period	An indication of the likelihood of an event occurring; a recurrence interval demonstrating how frequently an event is expected to occur; For example, an event or a loss with a return period of five years is statistically expected to recur every five years on average over an extended period of time (or has a 20 percent probability of occurrence).
Risk Layering	The process of separating risk into tiers to allow for more efficient financing and management of risks.
Risk Pool	The aggregation of individual risks to manage the consequences of independent risks. Risk pooling is based on the law of large numbers.
Risk Retention	The process whereby a party retains the financial responsibility for loss in the event of a shock
Risk Transfer	The process of shifting the burden of financial loss or responsibility for risk financing to another party, through insurance, reinsurance, legislation, or other means.

Risk-Based Pricing	Pricing of an insurance policy to reflect the expected financial value of the underlying risk that is transferred through the insurance contract.
Sovereign Catastrophe Risk Pool	A group of countries that collaborate to manage financial risk as a single group (*see also risk pool*)
Underwriting	The process of issuing an insurance policy, thereby accepting a liability and guaranteeing payment in case a loss occurs.
Vulnerability	Characteristics and circumstances of a community, system, or asset that make it susceptible to the damaging effects of a hazard.

About the Organizations

Lee Kuan Yew School of Public Policy

Established in 2004, the Lee Kuan Yew School of Public Policy (LKYSPP) is an autonomous graduate school under the National University of Singapore. Nestled at the Bukit Timah Campus, next to the Singapore Botanic Gardens – a UNESCO World Heritage site, the mission of the school is to be the leading global public policy school in Asia, developing thought leadership, improving standards of governance and transforming lives for a more sustainable world.

World Bank Group's Disaster Risk Financing and Insurance Program (DRFIP)

The World Bank Group's Disaster Risk Financing and Insurance Program (DRFIP) helps developing countries manage the potentially high cost of natural disasters and climate shocks. DRFIP is a joint effort by the World Bank's Finance, Competitiveness and Innovation (FCI) Global Practice and the Global Facility for Disaster Reduction and Recovery (GFDRR). DRFIP provides analytical, advisory, convening and financial services to over 60 countries worldwide to support the development and implementation of comprehensive financial protection strategies against climate and disaster risks.

Southeast Asia Disaster Risk Insurance Facility (SEADRIF)

The Southeast Asia Disaster Risk Insurance Facility (SEADRIF) is a regional platform that helps to build ASEAN's financial resilience against climate shocks and disasters. With the help of SEADRIF, member countries can avoid a disaster from turning into a crisis. SEADRIF provides ASEAN countries with advisory and financial services for post disaster rapid financing to reduce their impact on people and their livelihoods.

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For more information about the program, please contact:

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For information on Lee Kuan Yew School of Public Policy, NUS:
http://lkyspp.nus.edu.sg/

For information on DRFIP:
www.financialprotectionforum.org

For more information on SEADRIF:
www.seadrif.org/

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