



CCRIF SPC
The Caribbean Catastrophe Risk Insurance Facility

Introduction to Disaster Risk Financing and CCRIF Parametric Insurance

Introduction to Disaster Risk Financing

Prepared by: CCRIF SPC



A satellite image of a tropical cyclone, showing a well-defined eye and spiral cloud bands over a dark blue ocean. The landmasses of Central America and the Caribbean are visible on the left side of the frame.

Introduction to Disaster Risk Financing



Disaster Risk Financing and Financing DRR

Same or
different?

- The number of disasters is increasing
- The cost of disasters is increasing
- Disaster mortality is concentrated in developing countries
- Growth in development assistance in DRR has been moderate



- The increasing frequency and severity of climate extremes has forced governments to consider new ways of meeting the financial consequences of natural disasters, and there is a growing interest **in implementing sovereign Disaster Risk Financing and Insurance (DRFI) programmes** in an attempt by governments to be financially prepared for when disasters occur.
- This has resulted in tremendous growth in the number and type of financial and budgetary instruments available, ranging from disaster reserve funds and lines of contingent credit to insurance instruments

Disaster Risk Finance Across the Globe

- <https://www.youtube.com/watch?v=VtvQaJx71E0>



Disaster Risk Financing Strategies – aka Financial Protection Strategies

- It is often argued that financial protection strategies treat the symptoms but not the cause of disasters
- Good strategies can help governments cope with the financial impact of calamities but do little to shelter populations and assets from the destruction of cyclones and earthquakes. Financial protection is only one component of a comprehensive disaster risk management strategy.
- Financial protection will help governments mobilize resources in the immediate aftermath of a disaster, while buffering the long-term fiscal impact of disasters.
- Clearly, well-designed disaster risk financing strategies can create financial incentives for governments and/or households to further mitigate their risks.
- When a Ministry of Finance is sensitized to a country's exposure it can help mobilize resources beyond disaster response in support of risk mitigation.

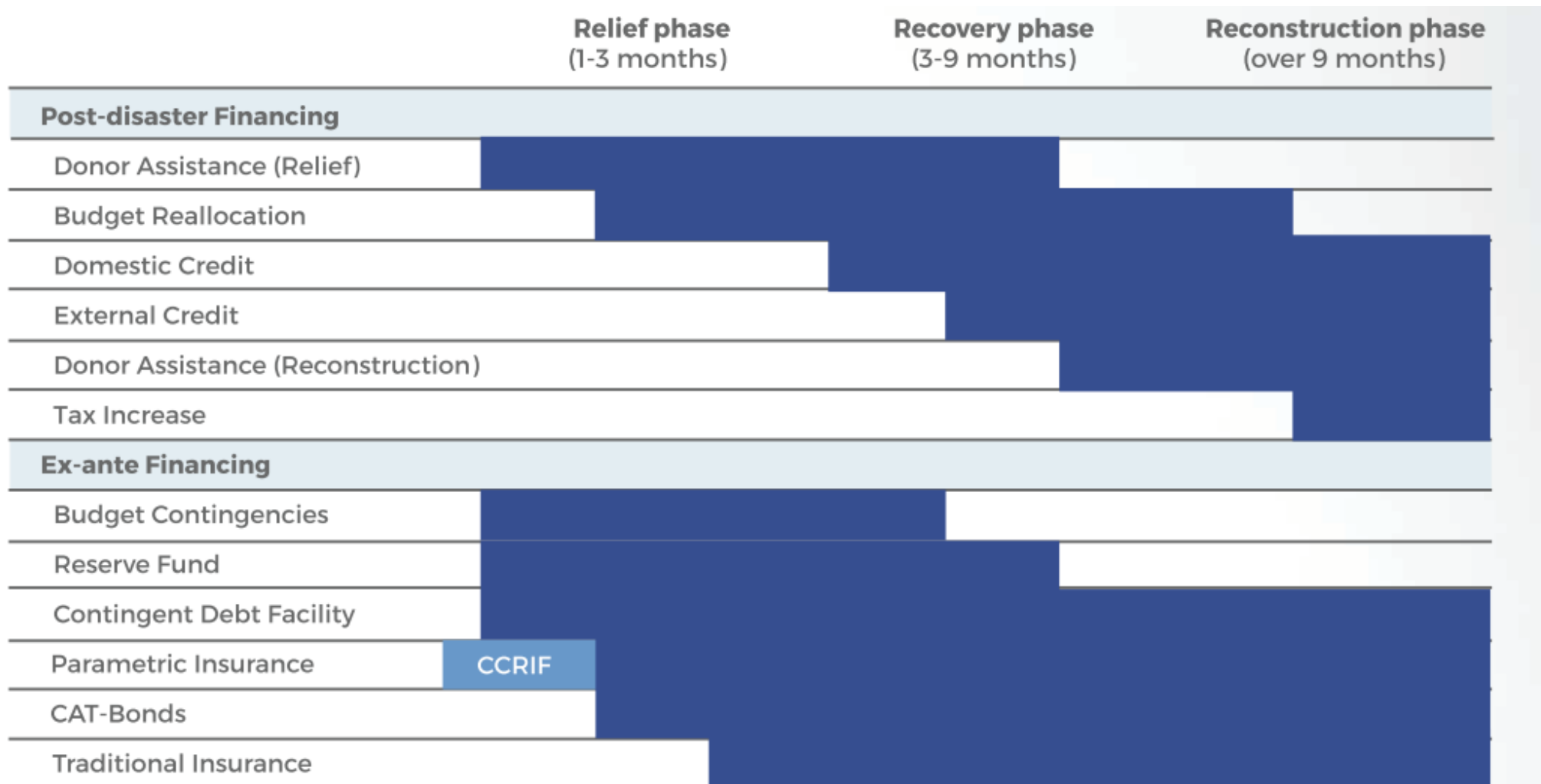


Disaster Risk Financing

- Disaster Risk Financing (DRF) is a growing discipline that addresses the fiscal impacts and economic losses caused by natural hazards (e.g. cyclones, droughts, earthquakes, floods) and supports countries to increase their financial resilience to natural disasters.
- The objective of disaster risk financing is to help minimize the cost and optimize the timing of meeting post-disaster funding needs without compromising development goals, fiscal stability, or wellbeing.
- DRF promotes comprehensive financial protection strategies to ensure that governments, homeowners, small and medium-sized enterprises, agricultural producers, and the most vulnerable populations can meet post-disaster funding needs as they arrive.

Examples of Disaster Risk Financing Instruments

Managing this risk requires a multifaceted approach



Reasons for Government Employing DRF

Three reasons governments should pursue ex-ante financing strategies

Governments are typically responsible for large portfolios of public infrastructure assets subject to risk

To guarantee capital for emergency relief and assistance to affected households, businesses and communities. If governments lack the necessary infusion of post-disaster capital to rebuild critical infrastructure, restore homes and provide humanitarian assistance, indirect costs can greatly surpass the direct losses of a disaster

Developing countries have a higher propensity for post-disaster resource deficits. Governments of developing countries typically must divert from their budgets or from already disbursed development loans to finance post-disaster expenses, also relying on new loans and donations from the international community

Disasters have a much more disruptive impact on the economy of less advanced economies. Although they still catch the attention of the general public, major disasters rarely impact the economy (and budgets) of advanced economies

Assessing a Government's Financial Exposure – A Critical Component of DRF

- Assessing a government's financial exposure is different from a macro-economic analysis of the impact of disasters
- A macro-economic analysis aims to identify and to quantify the economic impact of natural disasters in terms of direct and indirect losses borne by an economy.
- A fiscal analysis aims to assess the impact of potential disaster events on the government finances, both in terms of additional expenditures and foregone fiscal revenues borne by the government.
- The analysis of financial exposure is a subset of the overall macro-economic analysis.

- **Countries that engage in pre-event planning are less likely to need large quantities of debt relief when disasters strike.**
- **Debt relief usually is in the form of loans and rarely grants. This type of post disaster assistance typically adds to the debt stock of countries.**



A Look at Countries and Regions Employing DRF

- The pioneers have included Mexico with both a national strategy for financing the reconstruction of disaster-affected public assets, FONDEN, and a scheme specifically targeted at protecting smallholder farmers from yield losses due to drought, CADENA.
- Smaller countries have collaborated in regional risk pooling through such institutions as CCRIF SPC (the first multi-country risk pool), the African Risk Capacity for East and West Africa, and the Pacific Catastrophe Risk Insurance Pilot – the latter two being adapted off the CCRIF model
- Pools such as CCRIF enable governments to make regular payments in good years in return for financial protection in bad years, making financial resources more readily available when natural catastrophes occur and at a lower long-term cost.
- The programmes typically combine access to funding through different instruments according to the magnitude of the shock and the country capacity: accumulated reserves and precautionary savings, contingent credit, risk transfer through index-based insurance and re-insurance, post-disaster budget reallocations, and post-disaster borrowing.
- **How to optimally layer these sources of financial liquidity is critical**



An introduction to some DRF Tools

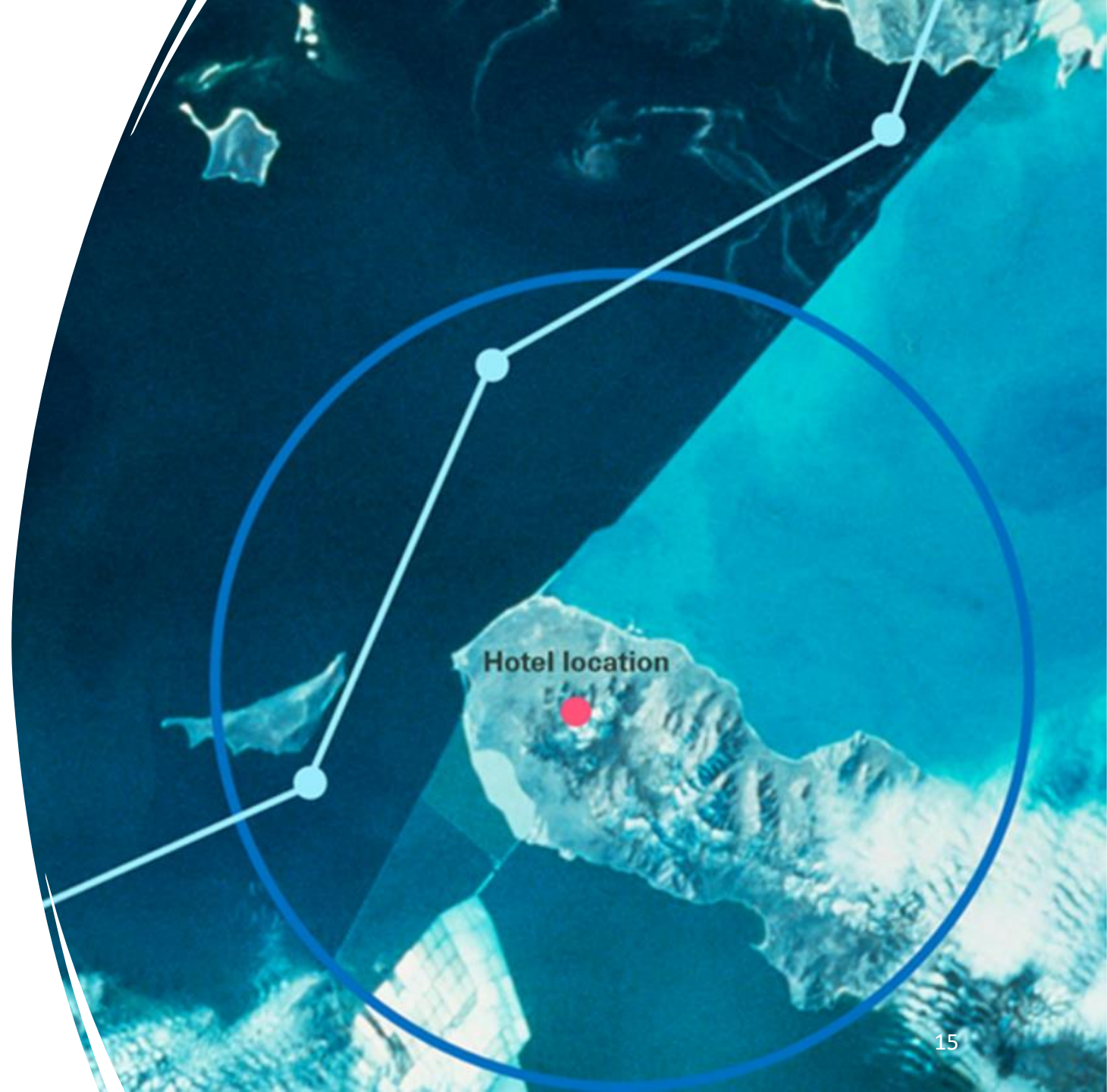
- Parametric Insurance
- Catastrophe (Cat) Bonds
- Contingent Lines of Credit
- Dedicated Reserve Funds
- Microinsurance

Parametric Insurance

- Covers the probability of a predefined event happening (e.g., a major hurricane or earthquake), instead of indemnifying actual loss incurred and pays out according to a predefined scheme.
- Insures a policyholder against the occurrence of a specific event by paying a set amount based on the magnitude of the event, as opposed to the magnitude of the losses in a traditional indemnity policy.
- Makes a payment upon the occurrence of a triggering event and is detached from a specific underlying physical asset or piece of infrastructure.
- Make payments based on the intensity of an event (for example, hurricane wind speed, earthquake intensity, volume of rainfall) and the amount of loss calculated in a pre-agreed catastrophe model caused by these events.

“Cat-in-a-box” parametric insurance

- The insured is a hotel
- Based on the value of the exposure (hotel assets)
- The policy is structured to pay out 25%, 50% or 100% of a predefined limit of USD 5M for a Category 3, 4 or 5 Cyclone respectively, happening in a 50 km radius around the point of interest – in this case, the insured's hotel.



How CCRIF Parametric Insurance Policies Work

Parametric insurance disburses funds based on the occurrence of a pre-defined level of hazard and impact

Policy triggered on the basis of exceeding a pre-established trigger event loss

Estimated based on wind speed and storm surge (tropical cyclones) or ground shaking (earthquakes) or volume of rainfall (excess rainfall)

Hazard levels applied to pre-defined government exposure to produce a loss estimate

Payout amounts increase with the level of modelled loss, up to a pre-defined coverage limit

CCRIF makes payouts within 14 days after an event.



Characteristics of Parametric Insurance

- Generally less expensive than an equivalent indemnity insurance product
- Payouts can be calculated and made very quickly because loss adjusters do not have to be relied on to estimate damage after a catastrophe event, which can take months or years
- Governments do not have to provide detailed asset values and other information prior to the insurance programme commencing
- Calculation of payouts is totally objective
- The risk, which drives policy pricing, is uniformly defined
- Subject to basis risk which means that events can occur which produce modelled losses that are different from losses on the ground

Differences Between Parametric and Indemnity (Traditional) Insurance

	Parametric Insurance	Indemnity Insurance
Lower Premiums	<ul style="list-style-type: none">• Lower transaction and administrative costs	<ul style="list-style-type: none">• Includes claim assessing costs
Faster Payouts	<ul style="list-style-type: none">• Payments based on a pre-defined hazard level	<ul style="list-style-type: none">• Need loss adjustment process• This requires additional time
Objective and Transparent	<ul style="list-style-type: none">• Direct access to information for policyholders• Objective payout calculation	<ul style="list-style-type: none">• Opinions on loss level depend on the adjuster• Conditions, exclusions and limitations often add uncertainty and delay
Uniformly Defined Risk	<ul style="list-style-type: none">• All risk is defined with the same parameters	<ul style="list-style-type: none">• Risk is valued under different assumptions depending on company parameters

Differences Between Parametric and Indemnity Insurance

	Parametric Insurance	Indemnity Insurance
Moral Hazard Reduction	<ul style="list-style-type: none">• Cost of insurance is related to event probabilities and payouts are not related to external efforts	<ul style="list-style-type: none">• Policyholders may engage in riskier actions
Simple Process to Obtain Coverage	<ul style="list-style-type: none">• Governments do not have to provide detailed asset values and locations	
Simplified Claims	<ul style="list-style-type: none">• Reversed claims process	<ul style="list-style-type: none">• Often claims processing takes a long time to be completed

Vortex Insurance parametric cover triggered at PGA TOUR Champions Event

⚡ 19th July 2023 - Author: [Kane Wells](#)

The DICK'S Sporting Goods Open received rain from June 23-25, triggering their rain insurance policy with Vortex Weather Insurance, which resulted in the tournament operator, Broome County Community Charities, receiving payouts that helped with lost revenue.

Earlier this month, it was announced that for the second consecutive year, Vortex Weather Insurance would provide a rain insurance policy for the DICK'S Sporting Goods Open, a PGA TOUR Champions Event at En-Joie Golf Course in Endicott, New York.

The DICK'S Sporting Goods Open is operated by Broome County Community Charities, Inc. (BCCC) and has donated over \$19.6 million to charity.

The insured rain events resulted in BCCC receiving payouts that helped with lost revenue.

"Because of the policy, the organizers went into the weekend with peace of mind. And when the policy was triggered, their instincts were proven right."

John Karedes, Executive Director of DICK'S Sporting Goods Open, commented, "We were fortunate enough to work with Vortex again to help protect our 2023 Tournament week. Turns out, it rained twice over the weekend and our policy was triggered.

"We received a check in less than two weeks. So even though the tournament wasn't as well attended as we hoped because of the rain, we were able to contribute fundraising dollars as planned."

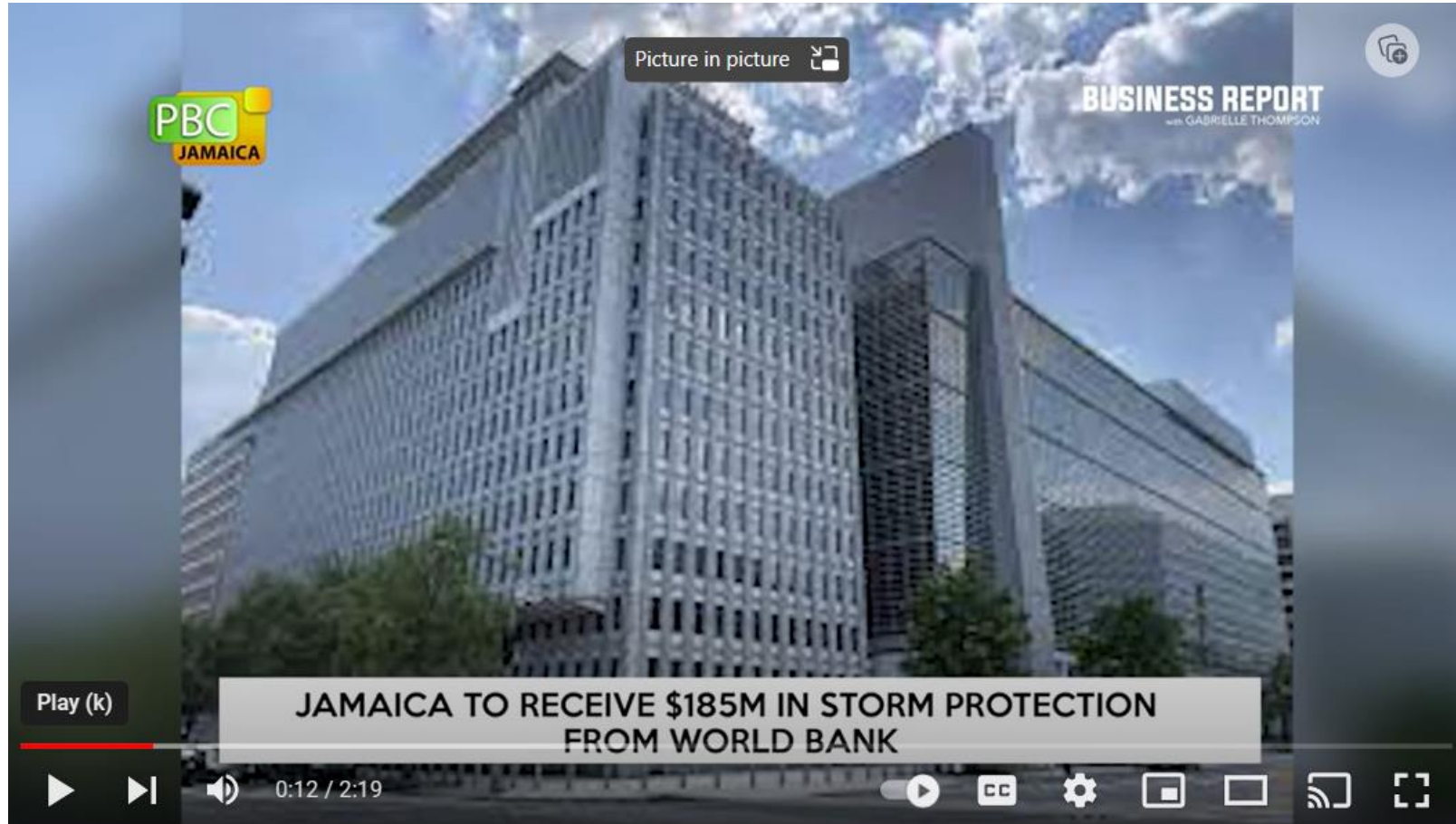




Catastrophe (CAT) Bonds

- First introduced in the mid-1990s
- A financial instrument to help governments finance disaster relief and post-disaster reconstruction without over-stressing their fiscal budgets
- A debt instrument that allows governments to tap the capital market and raise money from investors willing to bet against the likelihood of a disaster occurring in a particular place during a particular time period.
- Are an example of insurance securitization, creating risk-linked securities which transfer a specific set of risks (typically catastrophe and natural disaster risks) from an issuer or sponsor (ceding company/development partner such as World Bank) to capital market investors.
- Cat bonds, allows the transfer of risks to bond investors. For the issuer—typically governments, insurers, and reinsurers—cat bonds signify financial protection in case of a major natural catastrophe, such as a hurricane or an earthquake. For the investor, buying the bonds means they may get high returns for their investment, which is not subject to financial market fluctuations.

Cat Bonds – Video on Jamaica



<https://www.youtube.com/watch?v=fyHBwuk0crw>



Catastrophe (CAT) Bonds

- Catastrophe bonds utilize triggers with defined parameters which have to be met to start accumulating losses.
- Only when these specific conditions are met do investors begin to lose their investment.
- Triggers can be structured in many ways – in the case of from a sliding scale of actual losses experienced by the issuer (indemnity) to a trigger which is activated when industry wide losses from an event hit a certain point (industry loss trigger) to an index of weather or disaster conditions which means actual catastrophe conditions above a certain severity trigger a loss (parametric index trigger).



Catastrophe (CAT) Bonds – Advantages

- Effective tool to address the risk of loss and damage from climate change as it allows countries to raise capital that can be disbursed quickly in the event of a catastrophe.
- Cat bonds can be structured to allow payouts as soon as pre-defined trigger events occur.
- Cat bonds can also provide multi-year coverage to the issuing governments.
- Provide another dimension to diversify and manage catastrophe risk

Contingent Credit Facilities

- The Contingent Credit Facility is a DRF tools to help countries develop effective strategies for natural disaster financial risk management.
- The CCF offers contingent loans that are prepared in advance but are disbursed after the entity providing the loan has verified the occurrence of a disaster event in terms of type, location, and intensity
- The CCF's objective is to provide countries with cash following a natural disaster of severe to catastrophic proportions for humanitarian relief and to restore basic services.
- Proceeds from CCF Loans are used to cover extraordinary government expenditures incurred six months after the disaster. Examples of eligible expenditures include emergency sanitation equipment, medications and vaccines, temporary shelter equipment and installations, water and foodstuffs for displaced or distressed populations, and debris removal, among others.

Contingent Credit Facility

- **What is the amount of the CCF?**
 - The coverage limit of the CCF per country is up to US\$300 million or 2% of the borrowing member country's GDP, whichever is less.
- **How is a CCF loan triggered?**
 - The country, through the project executing agency, submits to the IDB a Request for Verification of Eligibility of the disaster event. The IDB will then apply a previously agreed calculation methodology to produce an Eligibility Verification Report. If the assessment concludes the event is eligible for disbursement, the IDB will include in the Eligibility Verification Report the maximum disbursement amount. The borrowing country must confirm in writing its intention to disburse.
- **What is the cost for the Borrower if the CCF loan is never triggered?**
 - There is no cost for the Borrower if there is no disbursement of funds.
- **What are the terms of the CCF?**
 - The same as an Investment Loan. Typically, these loans have a maturity period of 25 years, a grace period of 5.5 years and an interest rate based on LIBOR.

Jamaica's Contingency Fund – Example of a Dedicated Reserve Fund

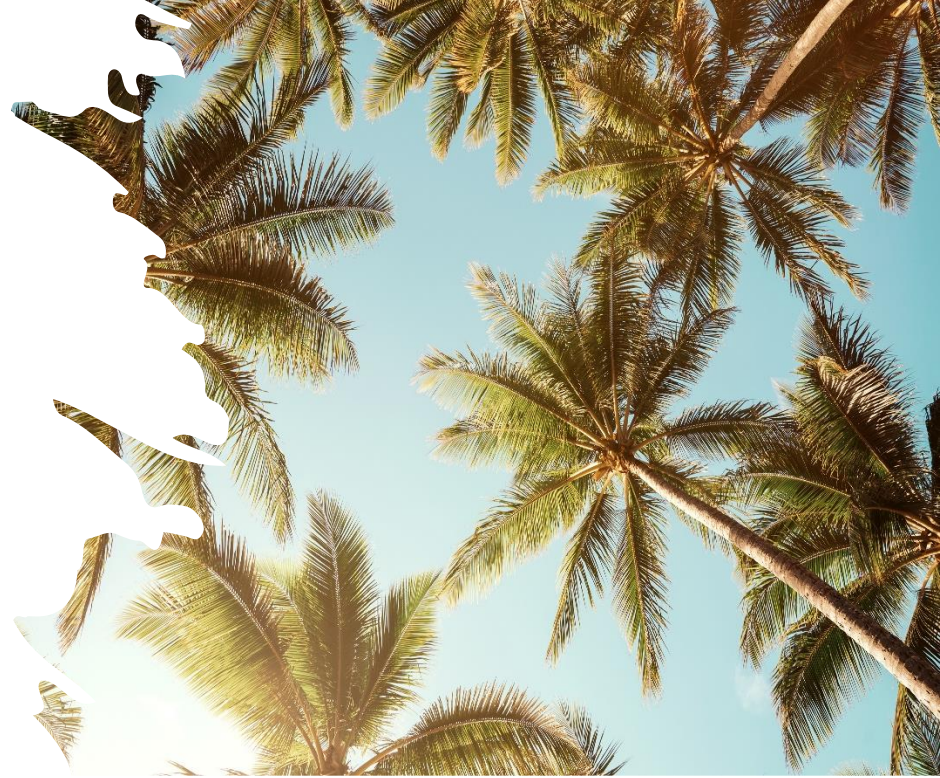
- The Government of Jamaica in keeping with the requirement of the Fiscal Responsibility Framework in 2019 transferred funds to the Contingencies Fund to specifically provide for the possibility of natural disaster.
- The Contingencies Fund is provided for in the Jamaican Constitution and was established under Section 13 of the Financial Administration and Audit Act to provide for unforeseen expenditure of any kind. The aggregate ceiling of the Contingencies Fund was raised to J\$100 million in 1992 and it has a balance of J\$94 million as at March 25, 2019.
- In 2019, GOJ moved a resolution to raise the ceiling of the Contingencies Fund from J\$100 million to J\$10 billion – US\$73.6 to provide space for future transfers related to natural disaster risk coverage
- And in 2019 a transfer J\$2 billion (US\$15 million) was made to the Contingencies Fund which is seen as be an important layer in our financing of natural disaster risk -
– note use of the fund for COVID-19

Microinsurance



Let's Consider

Country “**AlwaysSummer**” is a small island developing state located in the Caribbean region with a population of about 1.2 million. Like its neighbours, “**AlwaysSummer**” is vulnerable to natural disasters - such as hurricanes and flooding - and the effects of climate change. The macroeconomic profile of the country shows low growth, high public debt, and exposure to external shocks such as rising oil prices. As the country advances beyond the legacies of the global financial crisis it has bolstered international reserves and strengthened its financial sector through legal and regulatory improvements.



Exercise

Using the diagram below, show how different financial instruments may be combined for Country “**AlwaysSummer**”

**Low Frequency
High Severity**



**High Frequency
Low Severity**

**Financing
Instruments**

High Risk:

Medium Risk:

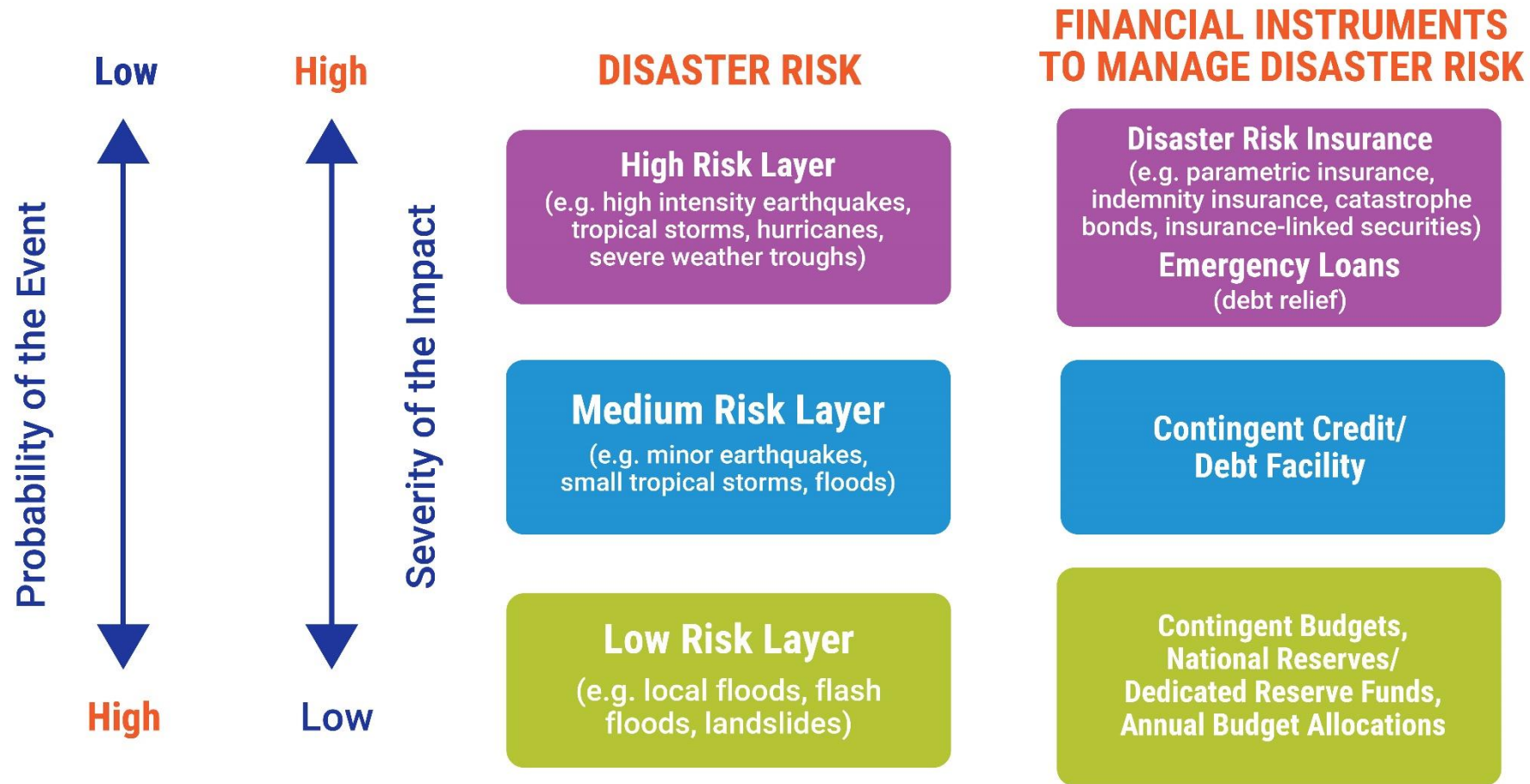
Low Risk:



Financing Instruments

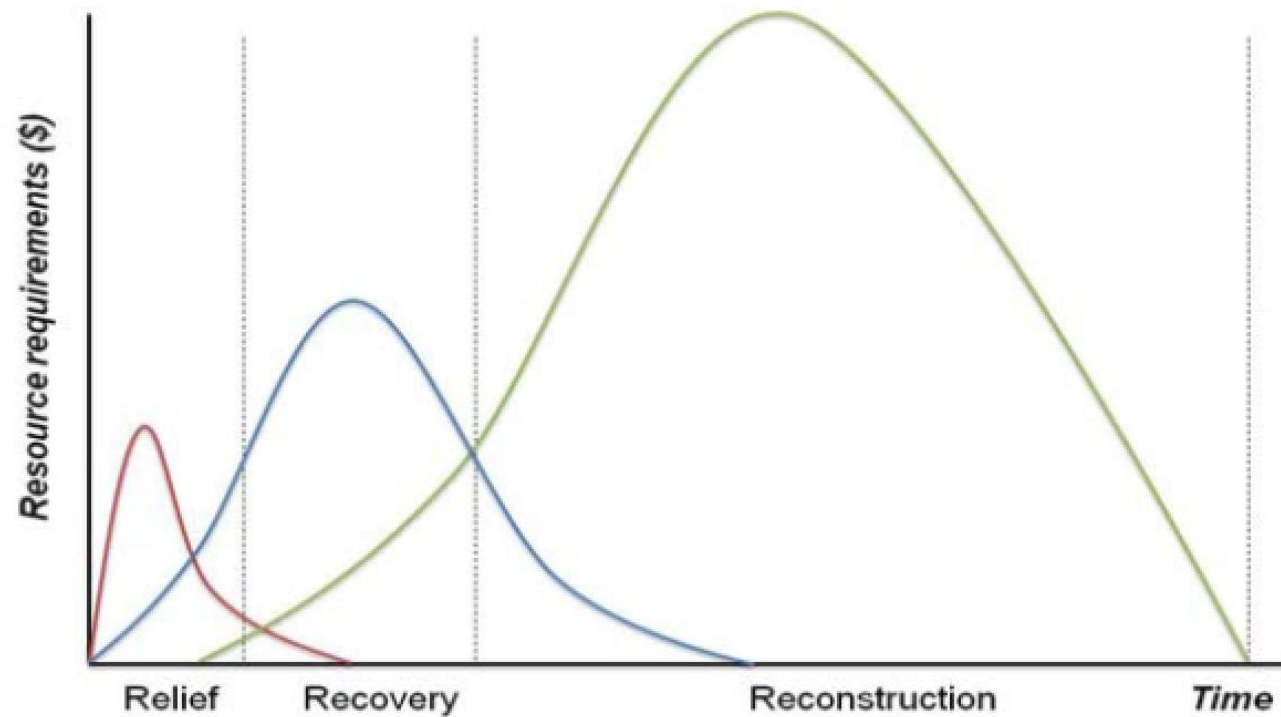
- Unsecured Bond
- Contingent Budgets
- Preference Shares
- Contingent Credit Line
- Catastrophe Bonds
- Taxation
- Parametric Insurance
- Stocks
- Dedicated reserve fund

Disaster Risk Financing Layering Approach



Governments should build a financial protection strategy that combines a number of instruments that address different layers or types of risk.

Main Phases of Post Disaster Funding Needs



The design of an efficient financial protection strategy must consider this time dimension to ensure that funding requirements are matched with the capacity to disburse

Exercise

Provide 3 strategies/solutions for the medium to long term which could be included in a disaster risk financing policy.

- Here are a few to get things going.
 - Enhance the availability of agricultural insurance. Can you think of other industries that would benefit from a similar type of insurance?
 - Engaging external development partners in establishing contingent financing arrangements. Can you think of a key development partner for your country?
 - Streamlining damage and loss data collection. What type of data would be useful? Do you think the region has the capacity for streamlining damage and loss data collection and analysis?





Disaster Risk Finance Solutions

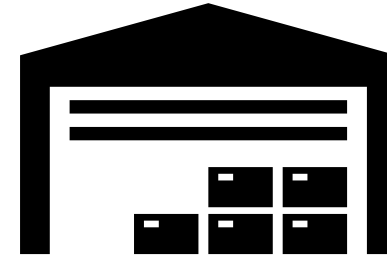
Exercise

Governments normally seek to strengthen the financial resilience of four different groups - national and local governments; homeowners and SMEs; farmers; and the poorest.

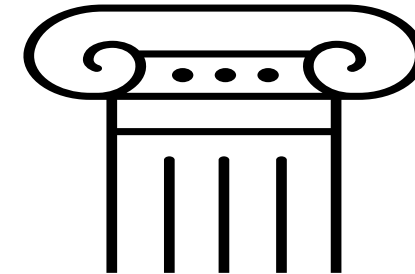
Briefly describe the disaster risk financing instruments best suited to address the challenges faced by each group mentioned above.



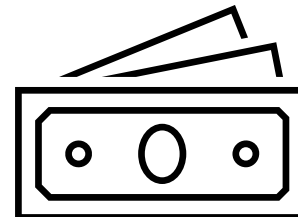
Homeowners and Small Businesses



Agriculture



**Resilient
livelihoods**



**Response and Budget
Protection**