Resilience Finance: Insurance Innovations
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Floodplain Management Association
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Innovative Risk Transfer Solutions for the Public Sector
Catastrophe bond and ILS issuance in Q2 2018 was the second highest ever recorded, at $5.151 billion.

H1 2018 issuance $9.39 billion, already the second most active full-year ever recorded.
Catastrophe Bonds

- Sponsor
  - Premium (spread)
  - Reinsurance contract

- Special Purpose Vehicle
  - Capital
  - Coupon (Libor + spread)*
  - Return of principal at maturity*
  - Investment
  - Investment return

- Investors

- Permitted Investments

* Payment subject to the insured natural disaster not occurring during lifetime of bond.
Indemnity / Parametric Insurance

Indemnity
- Pays on actual loss
- HIGH cost of loss adjustment
- Payment delays due to loss adjustment

Parametric
- Faster Payment upon triggering event
- Simple, easy to understand
- Event trigger defined by independent agency data (USGS, NOAA)
- Basis Risk
HydroMet Triggers

- Rainfall
- Flow / CFS
- Water Surface Elevation
- Storm Surge
- Barometric Pressure
- Wind Speed
Since the inception of the facility in 2007, CCRIF has made payouts to 12-member governments – all within 14 days of the event.

<table>
<thead>
<tr>
<th>Total Payouts</th>
<th>$130.5 Million</th>
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<tbody>
<tr>
<td>Hurricane Irma</td>
<td>$30.8 Million</td>
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<tr>
<td>Hurricane Maria</td>
<td>$23.6 Million</td>
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Source: CCRIF SPC

Members
- Anguilla
- Antigua & Barbuda
- Barbados
- Belize
- Bermuda
- Cayman Islands
- Dominica
- Grenada
- Haiti
- Jamaica
- St. Kitts & Nevis
- Saint Lucia
- St. Vincent & the Grenadines
- The Bahamas
- Trinidad & Tobago
- Turks & Caicos Islands
- Nicaragua
The Global Ecosystem Resilience Facility (GERF)
A framework for partnerships and collaboration

An umbrella facility to provide two key pillars of innovative finance for ecosystems and natural capital:

- Risk Transfer
- Project Finance
ENVIRONMENTAL IMPACT BONDS

$25 million Environmental Impact Bond to finance the construction of green infrastructure to manage stormwater runoff

“Pay for Success” financing approach

Limits financial risk to DC Water if the performance of the green infrastructure is less than anticipated and financially rewards investors if the performance exceeds expectations
Resilience Bonds: Leverage Local Capacities & Authorities

**Debt Instrument**
- Raise capital to fund resilience
  - Municipal Bond
  - Federal Credit or Loan
    - E.g. HUD s.108 Loan, FEMA Community Assistance Loan

**Risk Transfer**
- Protect investments
  - Uses analytics for deep understanding of extreme risk
  - E.g. Catastrophe Bond, Index / Parametric Cover
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Resilience Bond Example Structure

**Option 1**

**Investors (No Event)**
- **Issuance**
  - Pay principal
- **Life of the transaction (3-5 years)**
  - Receive interest
  - Pays interest
  - Mitigation Project
  - Pays interest
  - Does not pay interest
- **Maturity**
  - Receives principal back
  - Reimburse principal
  - Project Complete
  - Does not reimburse principal

**CITY / PROJECT SPONSOR**
- Receives principal in cash and uses it to fund project

**Option 2**

**Investors (With Event)**
- **Issuance**
  - Pay principal
- **Life of the transaction (3-5 years)**
  - Receive interest
  - Does not receive interest
  - Triggering Event
- **Maturity**
  - Receives principal back
  - Does not receive principal back

- There is a lot of flexibility in the product and this slide only shows one example
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