

# Expanding Green Finance, Blue Finance, and Disaster Risk Finance for Innovative Operations



16 December 2020 | 9:00AM – 12:00NN



Shangri-La Hotel, Beijing



Join via Zoom



# Welcome Remarks

---

**Mr. Zhang Zhiqing**

Deputy Director General  
National Development and Reform Commission

**Mr. Han Bin**

Deputy Director General  
Ministry of Finance (TBC)

**Mr. James Lynch**

Director General  
East Asia Department, Asian Development Bank







**Dr. Ma Jun**

Director  
Finance and Development Research Center and  
Green Finance Development Research Center



# Discussion and Q & A







**Dr. Gary Wei**

Insurance Expert



# From Pandemic to Greater Resilience: Managing Disaster Risks

Public Financing Strategies in Response to Disaster Risks

# Table of Contents

1. Disaster May Cascade in Multiple Dimensions
2. Disaster Risks are Contingent Liabilities
3. Contingent Capital Is a Symmetric Hedge to Contingent Liabilities
4. Reform of Public Finance in Response to Disaster Risks in the PRC

# 1

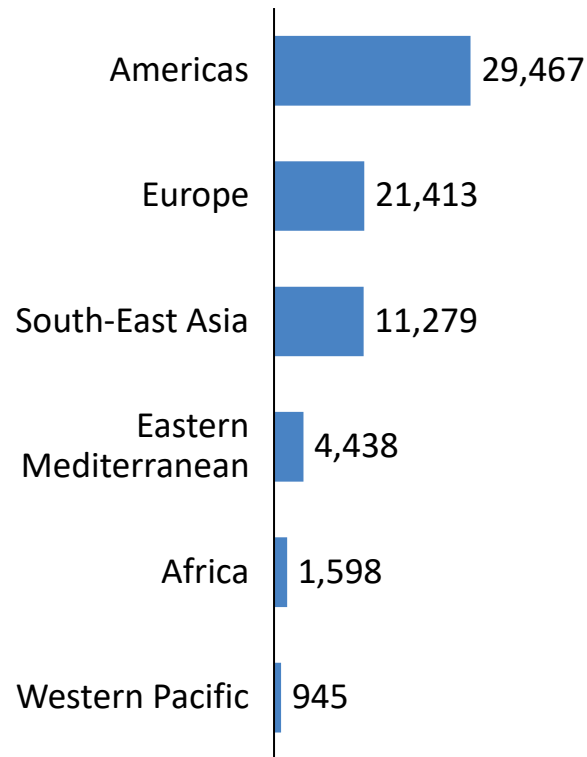
## Disaster Risks



# COVID-19 Pandemic Impact: GDP

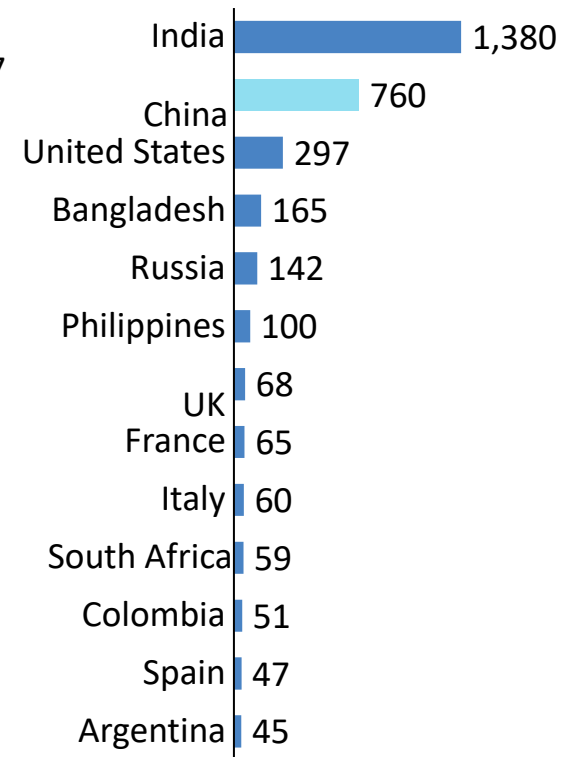
## Confirmed Cases

Unit: '000 people



## Lockdown population Economic Costs

Unit: million people



2020 exp. GDP growth

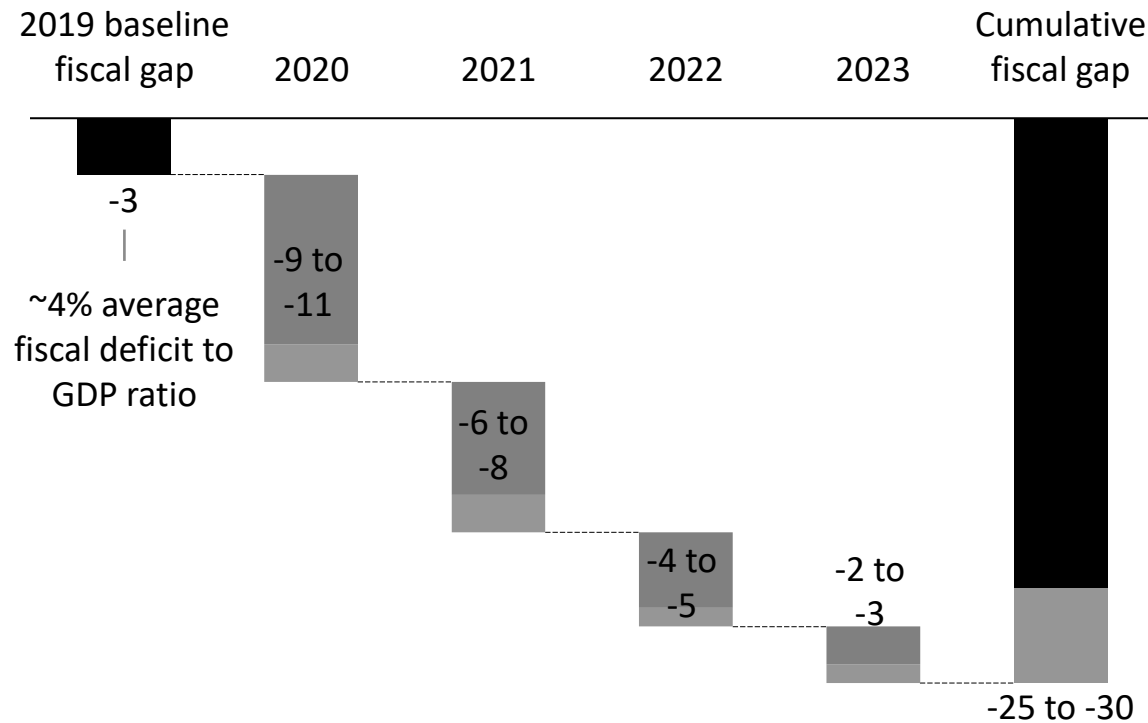
n/a
1.9%
-4.3%
n/a
n/a
n/a
-9.8%
-9.8%
-10.6%
n/a
n/a
-12.8%
n/a

- Nearly 70 million confirmed cases and nearly 2 million death toll
- Massive lockdown
- Closures or suspensions of businesses, ruptures of global supply chains, waves of layoffs, default of debts, reduction of revenues
- ADB model forecast: 6-month containment may result in global economic damage of US\$8.8 trillion, 9.7% of global GDP
- IMF warn: The final bill from the pandemic may total US\$28 trillion in lost output up to 2025

# COVID-19 Pandemic Impact: Fiscal Gap

## Projected global cumulative fiscal gap

Unit: USD trillion



- 2020 Public debts: 122% of GDP in advanced economies, and 62% in emerging economies (McKinsey)
- Global fiscal debt: US\$14 trillion in 2020 and US\$30 trillion in 2023
- Huge fiscal gaps to closed via reduction in public spending by 25% or tax increase by 50%
- Risks of extreme stimulus: monetization of crisis, flood of liquidity, bubble of asset pricing and commodities pricing, redistribution of income and assets, and widening gaps of the rich and the poor

# Natural Disaster Risks

## Most expensive non-U.S. Weather Disaster since 1990

Rank	Disaster	Year	Death Toll	Damage (in 2020 USD billion)
1	China Floods	1998	3,656	48
2	Thailand Floods	2011	813	47
3	North Korea Floods	1995	68	27
4	China Winter Weather	2008	145	26
5	China Drought	1994	104	24
6	China Floods	2016	475	23
7	China Floods	2010	1,691	22
8	China Floods	1996	2,775	21
9	Japan Typhoon Mireille	1991	66	19
10	India Monsoon Floods	2014	298	18
11	Germany Floods	2002	27	17
12	Italy Floods	1994	68	16
13	Japan Typhoon Hagibis	2019	99	15
13	China Floods	2019	300	15

- Impact of Climate Change: 50% of global economy, about US\$44 trillion of our economy being dependent on nature.
- Resilience to natural disaster risks: correlated to economic development, as natural disasters may cost 2.9% of GDP to emerging economies, 1.3% to developing economies, and only 0.8% to developed economies
- Average annual economic damage from natural disasters in the PRC: US\$50 billion to 150 billion



# Man-made Hazards

## Most expensive non-U.S. Weather Disaster since 1990

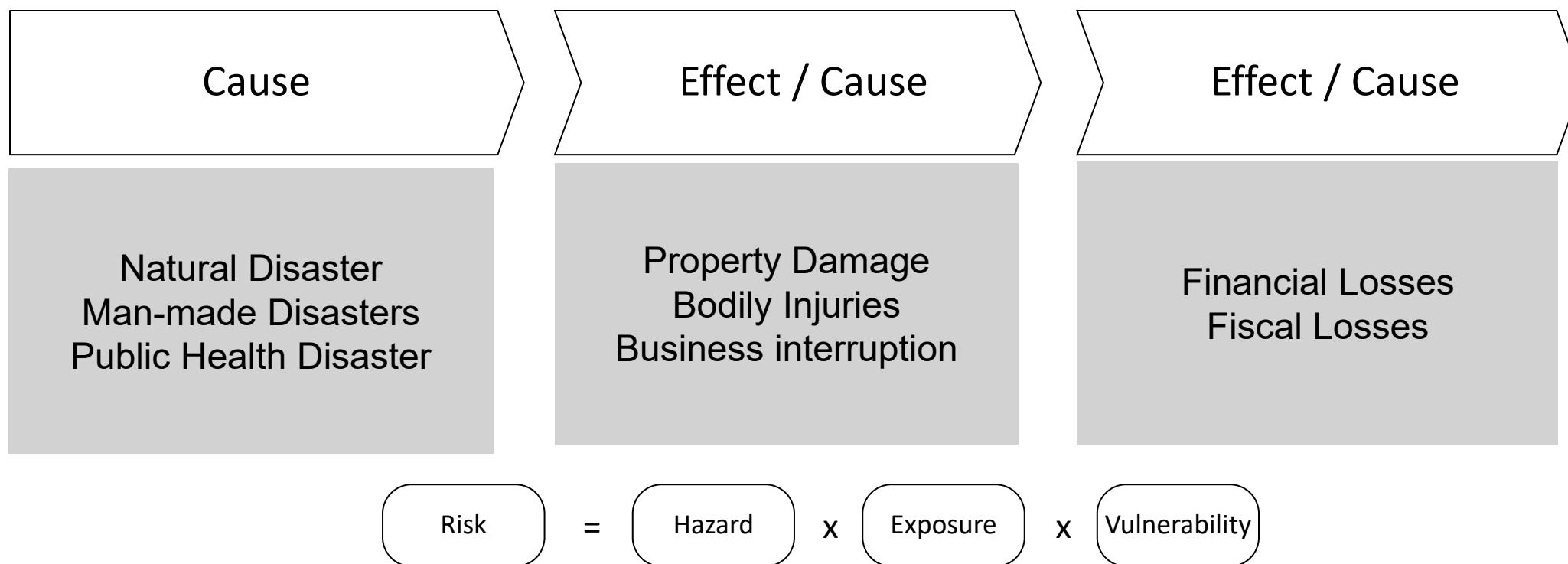
Year	Location	Catastrophic Events	Death Toll	Damage (in RMB million)
2013	Hou Ma	Fire of Warehouse of China Cotton	0	600
2013	Wu Xi	Explosion at SK Hynix plant	0	5,600
2013	Qing Dao	Explosion of oil pipelines of ChinaPetro	62	750
2014	Shanghai	Stampede accident at Bond of Shanghai	39	n/a
2014	Qun Shan	Aluminum dust explosion	146	351
2015	Yangtze River	Wreck of Cruise Boat Dong Fang	442	n/a
2015	Tianjin	Explosion of Tianjin Port	165	70,000
2019	Xiang Shui	Explosion of Chemical Plant	78	2,000

- Man-made disasters: fires, industrial accidents, construction site accidents, hazardous goods, mine accidents, and traffic accidents by road, air and sea
- Major perils of industrial hazards: Fires and explosions
- Metro hazards: Industrial parks and population density
- Hazards of traffic accidents: networks of highways and traffic

# 2

## Disaster Risks are Contingent Liabilities

# Cause and Effect of Disaster Risks



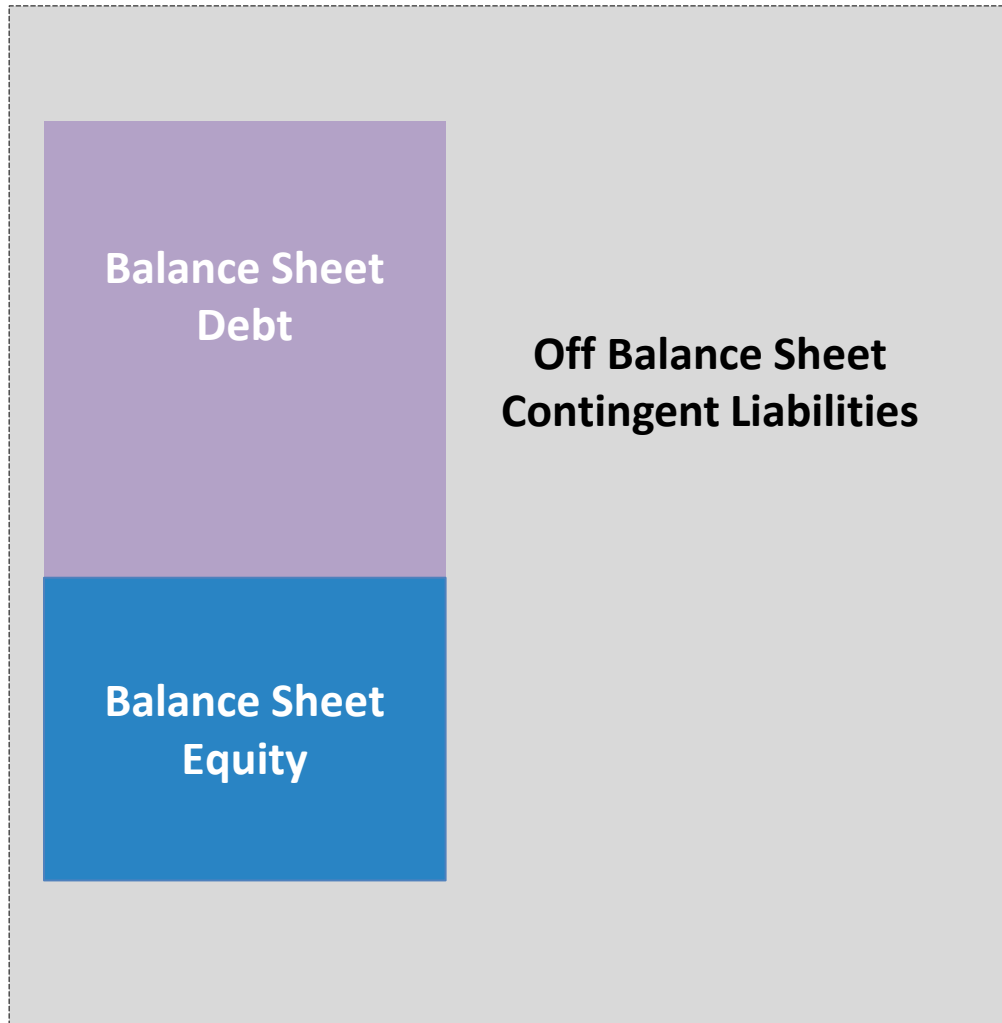
Disaster risks may cause property damage and bodily injuries, which may in turn result in financial losses of individuals, businesses and governments, and such financial damage should be measured and reflected as contingent liabilities



# Cascading Effect of Disaster Risks

Stakeholder	Effects	Financial effects	Cascading effects
People	<ul style="list-style-type: none"> <li>• Property damages</li> <li>• Bodily injuries</li> </ul>	<ul style="list-style-type: none"> <li>• Net-worth loss</li> <li>• Income loss</li> <li>• Disaster expense</li> <li>• Increased debts</li> <li>• Existing debts</li> </ul>	<ul style="list-style-type: none"> <li>• When disaster risks break out. <ul style="list-style-type: none"> <li>- Individuals, businesses and governments are affected by effects of direct losses</li> <li>- Disasters may cascade vertically and horizontally on supply chains, through social and economic networks, and via contractual relationships</li> <li>- Financial leverage</li> <li>- Financial damage may cascade into much greater disasters</li> <li>- Beyond where disasters start</li> </ul> </li> </ul>
Business	<ul style="list-style-type: none"> <li>• Property damage</li> <li>• Business interruption</li> </ul>	<ul style="list-style-type: none"> <li>• Net-worth loss</li> <li>• Income loss</li> <li>• Interruption</li> <li>• Default on contract</li> <li>• Stop in supply</li> <li>• Existing debts</li> <li>• Increase debts</li> </ul>	
Public authorities	<ul style="list-style-type: none"> <li>• Disaster reliefs</li> <li>• Rebuilding</li> </ul>	<ul style="list-style-type: none"> <li>• Cut in fiscal income</li> <li>• Disaster reliefs</li> <li>• Reconstructions</li> <li>• Distort of budgets</li> <li>• Increased payouts</li> <li>• Existing debts</li> <li>• Increased debts</li> </ul>	

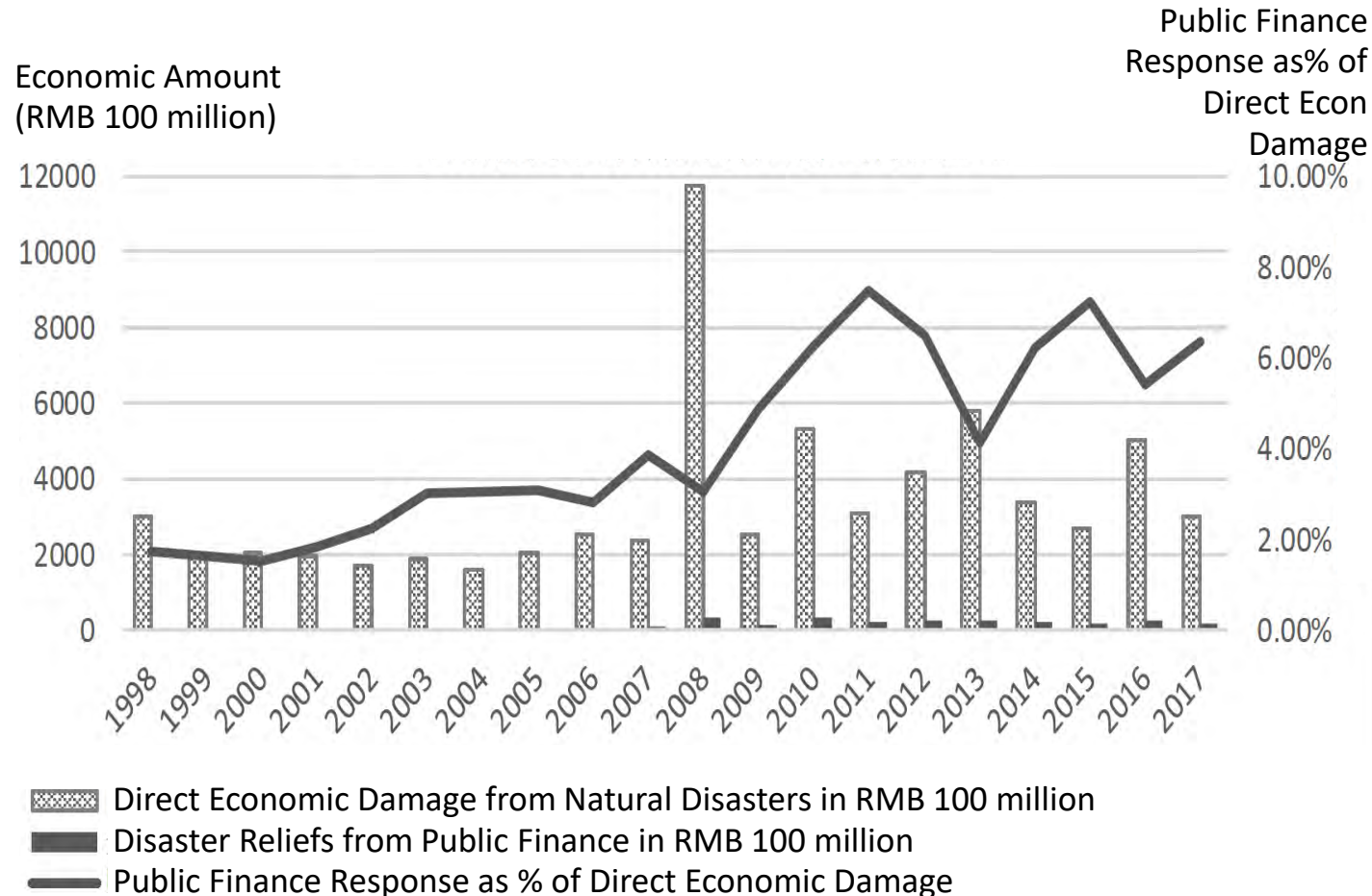
# Disaster Risks are Contingent Liabilities



- Contingent Liabilities of Public Finance in Response to Disaster Risks:
  - For disaster reliefs and post disaster reconstructions of the government
  - For bailout in economic crisis derived from disaster breakout
  - Fiscal risks
- Disaster Risks related Contingent Liabilities are due to be categorized, quantified and hedged.

# Issue of Traditional Fiscal Budgeting System

## PRC Direct Economic Damage vs. Disaster Relief



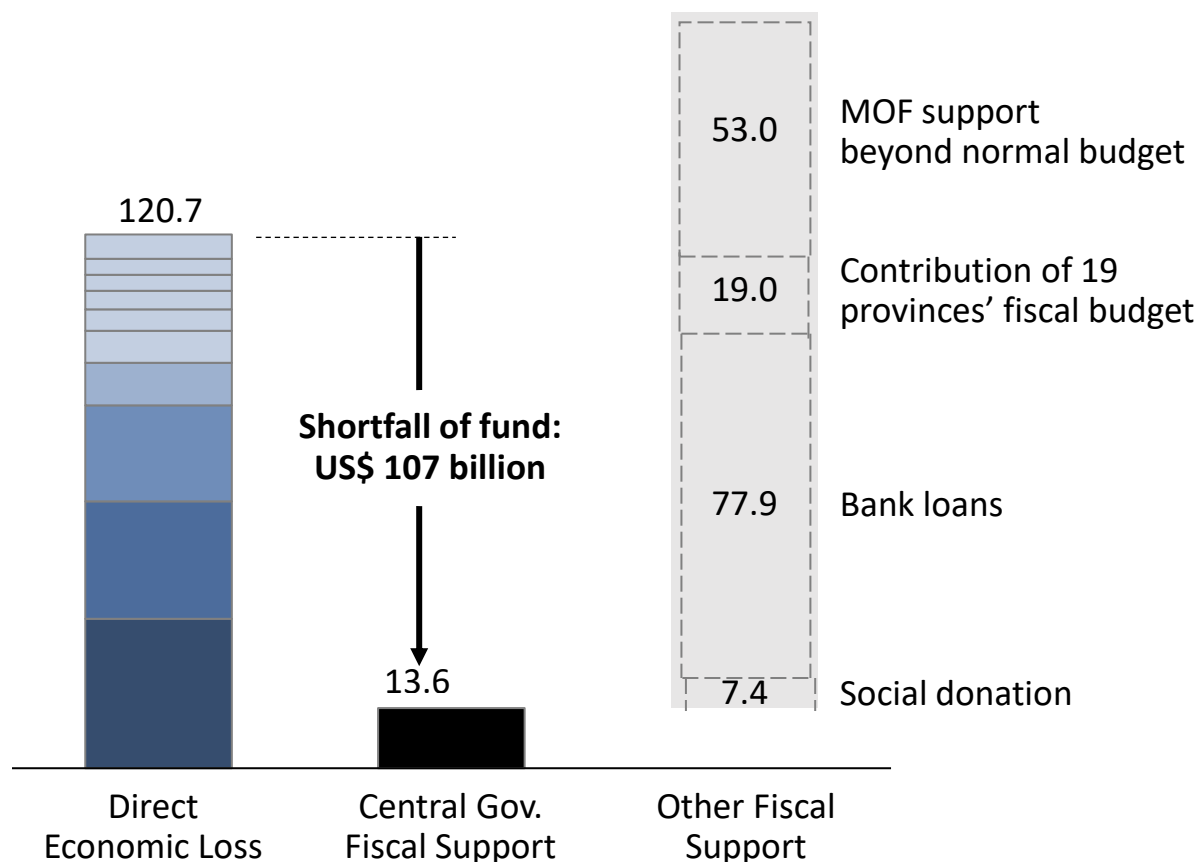
- Traditional fiscal budget framework is cash oriented, including : 1) defined functions for emergency and disaster relief response; 2) fiscal budgetary reserve fund; 3) fiscal budget stabilization fund; 4) special purpose funds
- Gaps of existing fiscal system:
  - Cash oriented budgets vs. potential contingent liabilities for disaster reliefs and reconstructions
  - Public finance in response to natural disasters is only 2% - 7% in the past 20 years
- Challenge: rigidity & balance



# 2008 Wenchuan Earthquake Impact

## PRC Direct Economic Damage vs. Disaster Relief

Unit: USD billion



- Wenchuan EQ: US\$120.7 billion in economic damage, 2.6% of GDP or 13.9% of fiscal revenue of 2008
- Central Government Actions:
  - RMB860 million of emergency relief fund and RMB12 billion of special purpose fund for reliefs
  - RMB13 billion of international donations
  - RMB20 billion in reduction of tax
  - RMB70 billion in post EQ reconstruction fund
  - Cut of 5% expenditures of central government
  - 19 provincial governments contributed 1% of their annual fiscal expenditures to WC EQ Fund for 3 years
- Gaps: Direct economic losses of US\$120.7 billion vs. Fiscal fund of US\$13.6 billion in the system

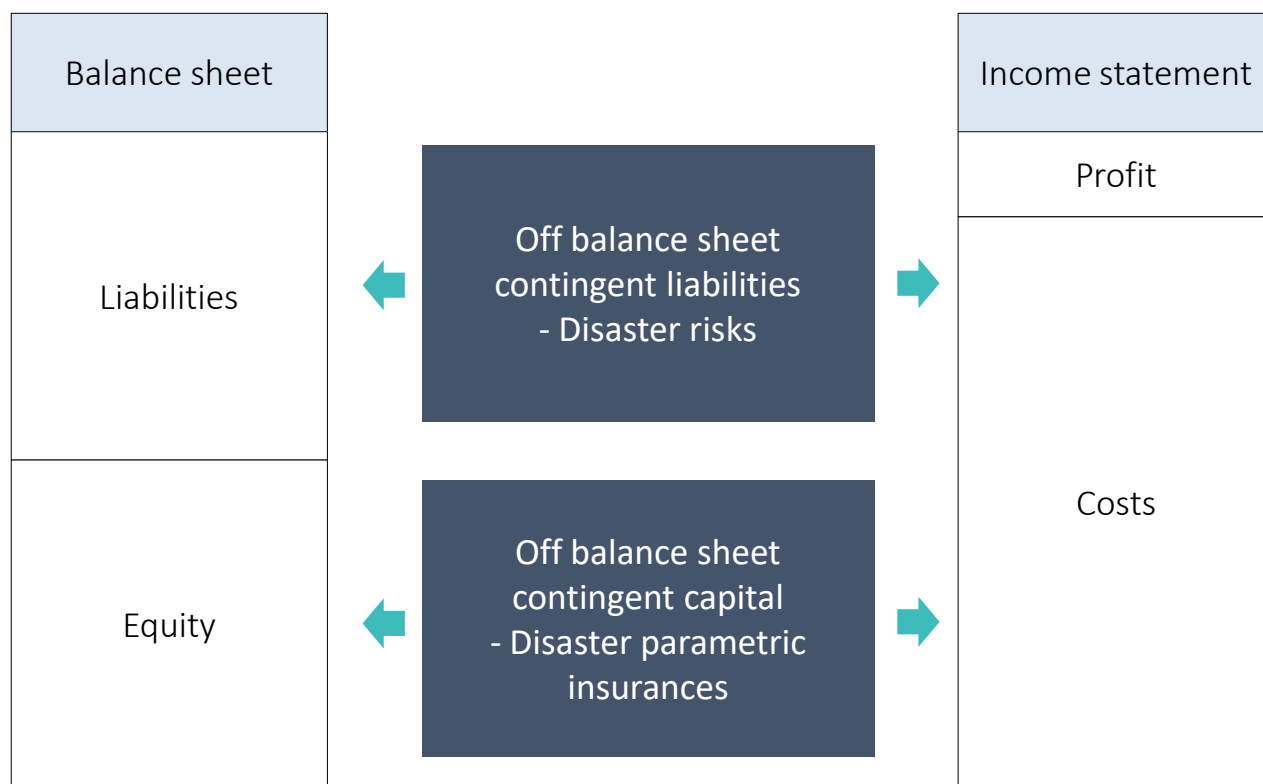
\*Including losses in cultural heritage, mining resources, natural reserves, etc.

# 3

## Contingent Capital is a Symmetric Hedge to Contingent Liabilities

# Contingent Capital Instrument

## Contingent Capital in response to Contingent Liability



- Disaster risks are recessive contingent liabilities of public finance
- Contingent liabilities originate from balance sheets and L&P accounts as well as underlying activities.
- Contingent liabilities are well beyond capacity of balance sheets
- Contingent liabilities arising out of disaster risks should be hedged with such contingent capital instruments as disaster parametric insurances, aiming to achieve certainty of expected financial and fiscal KPIs

# Insurance as Widely Used Contingent Capital

## **Insurance**

- To hedge relevant disaster risks of symmetric frequency and severity of occurrence
- Either indemnity based on actual losses or index based on predefined parameters

## **Parametric Insurance**

- Index (parametric) insurances are coverage to be triggered by predefined index, such as precipitation, wind speed, temperature, of which trigger thresholds are set for claims to be correlated to actual losses.
- More relevant to public finance in response to disaster risks, given parametric insurance trigger thresholds can be linked up with parameters of government emergency response system.

## **Insurance Principle**

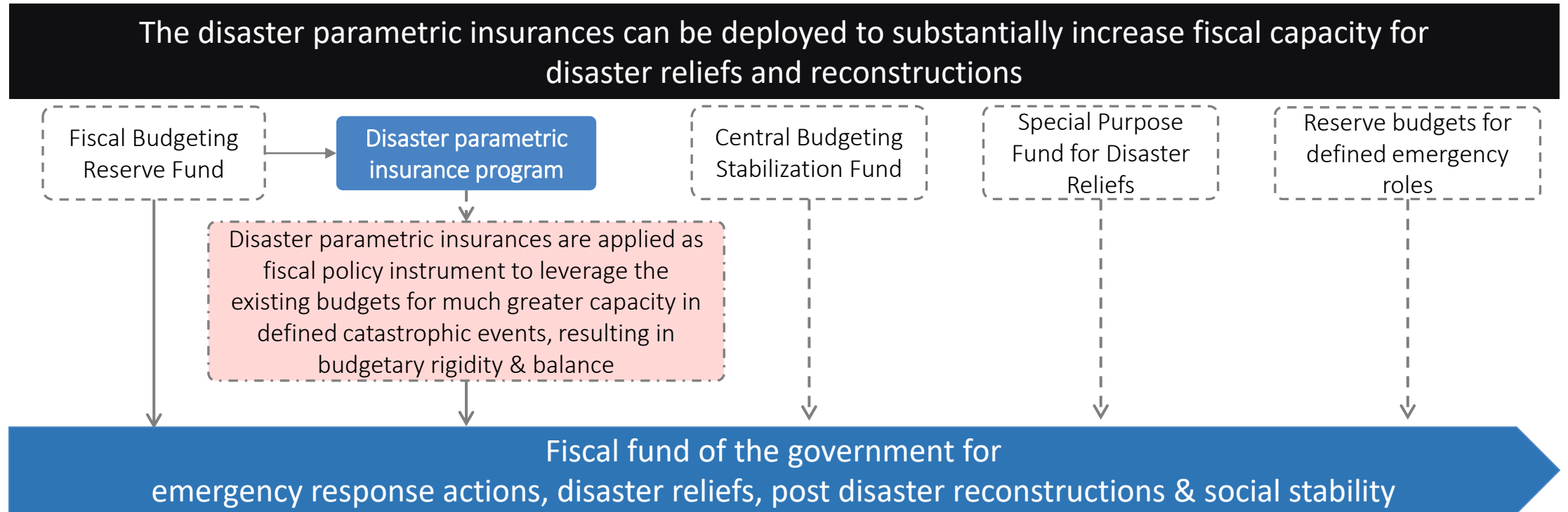
- Insurance premium is the cost of disaster risks, instead of cost of risk breakout
- Key KPI of insurance is the ratio of Claim to Sum Insured, instead of Claim to Premium

## **Securitization of Cat Index Insurances**

- Catastrophic Risks: One cat event may cause massive property damage and bodily injuries, which will in turn cascade horizontally and vertically into financial damage beyond. Such risks are not insurable according to Large Number Theory.
- Cat index insurances can securitized via bond at risks as reliable source of pricing and capacity

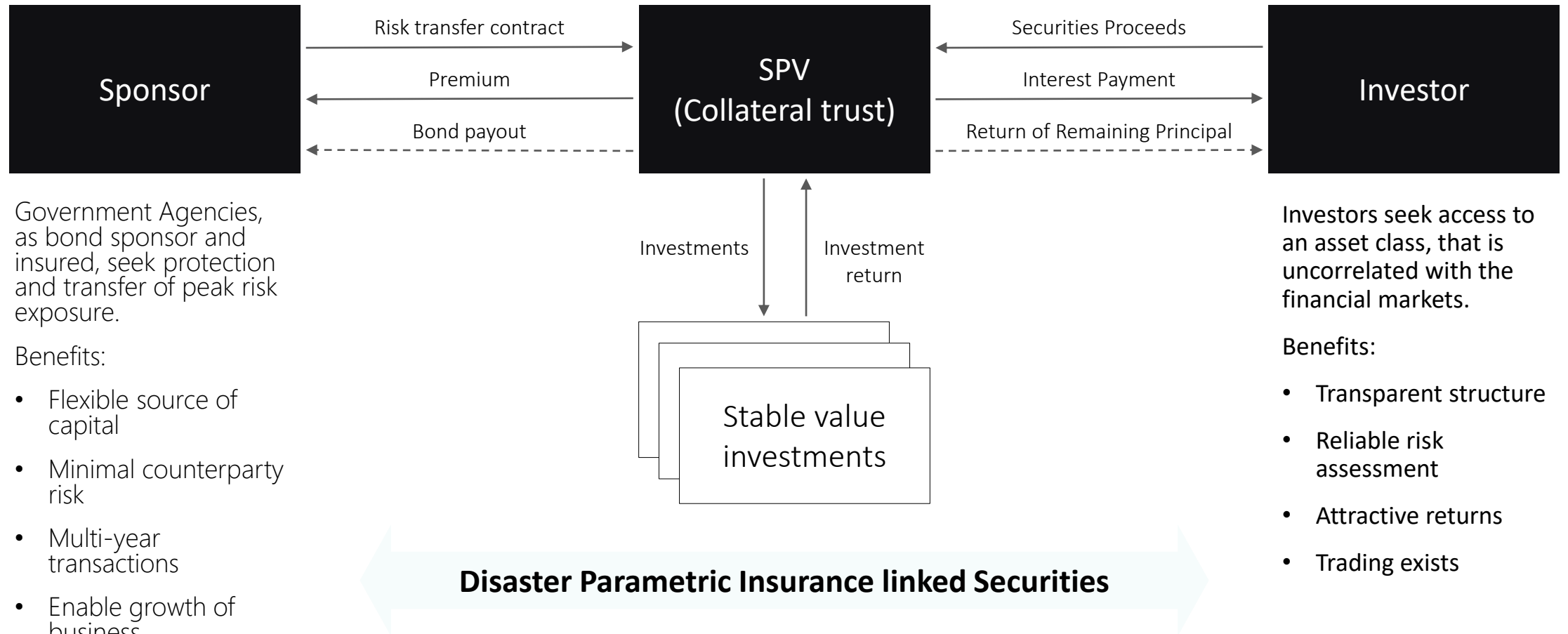


# Disaster Parametric Insurance in Public Finance



- To analyze and quantify gap of cash oriented budgets in response to disaster risks related contingent liabilities
- To design such structures as index of perils, trigger thresholds, calculation cycles according to frequency and severity of risk occurrence, given hazards and exposures of the cat risks which cause contingent liabilities.
- To validate the insurance structure by calculating the ratio of claims to sums insured in the years of disasters.

# Securitization of Disaster Index Insurances



# Heilongjiang Agricultural Disaster Parametric Insurance

## Weather Index Calculation Cycle

WII	Type	Year	Time
	Drought	2016 summer drought	Jun - Aug SPEI
		2017 spring drought	May SPEI
	Low temperature	2017 spring drought	May SPEI
	Excessive rainfalls	2017 spring drought	May SPEI
		2017 spring drought	May SPEI
		2017 spring drought	May SPEI

## Insurance Summary

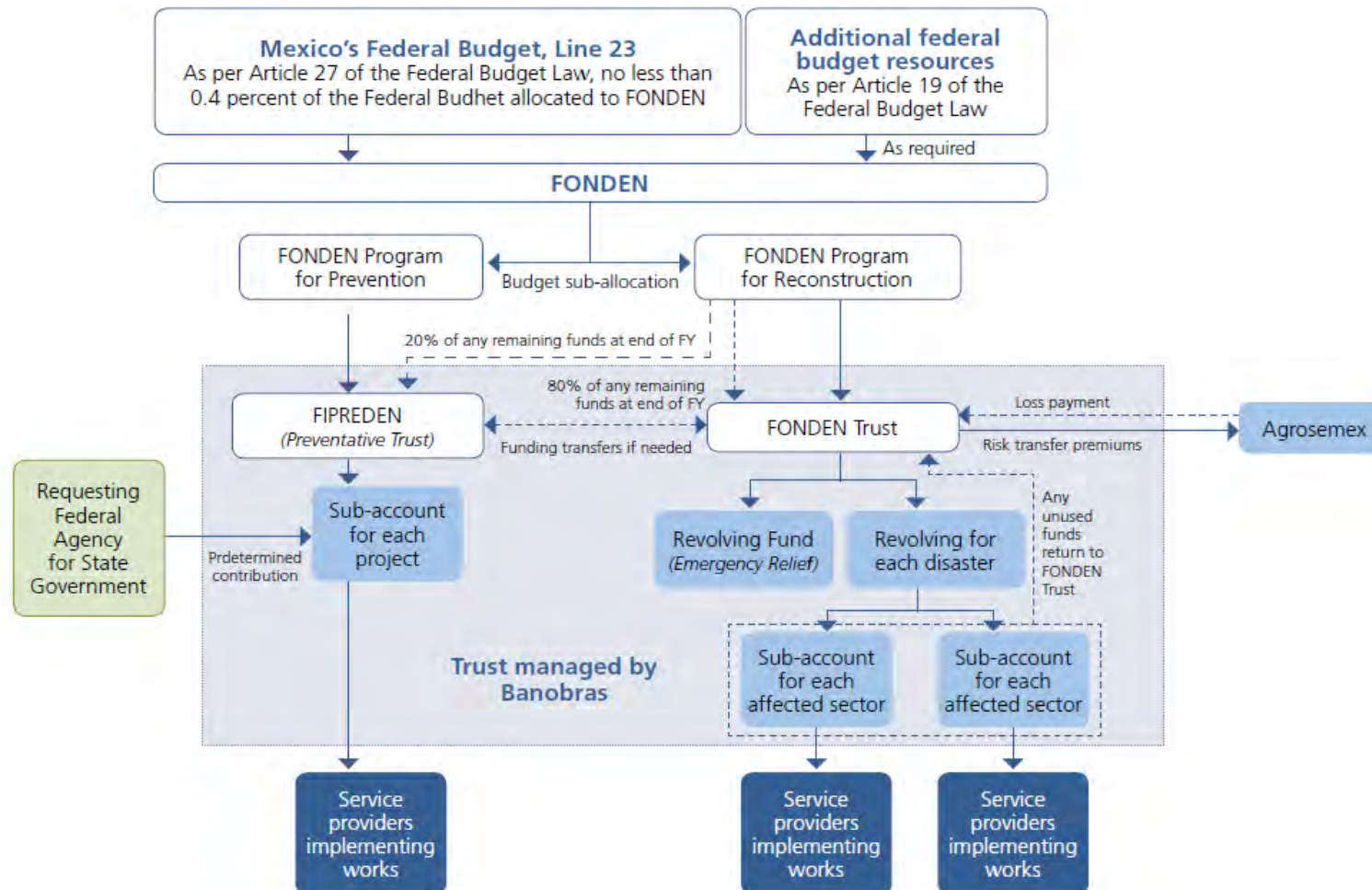
- Insured: Treasury of Heilongjiang Provincial Government
- Geography: 28 poverty prone counties in the province
- Triggers: Excessive rainfall, draught, low temperature, flood
- TSI: RMB2.3 Billion for Year 1 and RMB1 billion for Year 2 and Year 3
- Premium: RMB100 million

## Significance of Pilot

- 1st agro weather disaster index insurance scheme blended in public finance in response to agro disaster risks
- Leverage of existing budget for greater capacity of public finance in response to contingent liabilities for agricultural disaster reliefs
- Assessment of MoF and MoA on feasibility of such model to enhance the capacity of Agricultural Disaster Prevention and Relief Fund

# FONDEN Disaster Fund: Public Finance (1 of 2)

## FONDEN's Resource Allocation Process



- Classical public finance framework imbedded with cash reserve and contingent financing tools in response to natural disaster risks
- Rehabilitation and reconstruction:
  - Public infrastructures of government of Mexico (federal, state, and municipal)
  - Low-income housing
  - Components of natural environment, such as forestry, protected natural areas, rivers, and lagoons
- Loss Prevention

# FONDON Disaster Fund: Cat Bond (2 of 2)

## Bond Structure



## Bond Details

Currency	US\$
Class	Class A Earthquake low frequency Class B Earthquake high frequency Class C Atlantic Hurricane Class D Pacific Hurricane
Notional (Max Payout)	Total Cover: US\$ 485 million Class A US\$ 175 million Class B US\$ 60 million Class C US\$ 125 million Class D US\$ 125 million
Tenor (Term)	4 years
Payout Structure	Pricewise linear payout function
Trigger Basis	Parametric, per occurrence
Trigger Type	Earthquake: CAT-in-a-grid Hurricane: CAT-in-a-grid (gates)
Expected Loss / Attachment Probability	Earthquake low frequency: 0.9%/1.71% Earthquake high frequency: 5.78%/8.3% Atlantic Hurricane: 5.79%/8.29% Pacific Hurricane: 4.06%/6.23%
Pricing / Premium Multiple	Earthquake low frequency: 3.5%/3.89 Earthquake high frequency: 9%/1.56 Atlantic Hurricane: 10%/1.73 Pacific Hurricane: 6.5%/1.6

- Regular tool of FONDEN in response to cat risks

- Firstly issued in 2006, and was renewed in 2009, 2012, 2017, 2018 and 2020

- Payout is to be triggered:
  - official state of emergency
  - disaster declaration issued by the SEGOB
  - EQ with a specified magnitude and epicenter was registered

- WB as the SPV to issue bond and cat parametric insurances

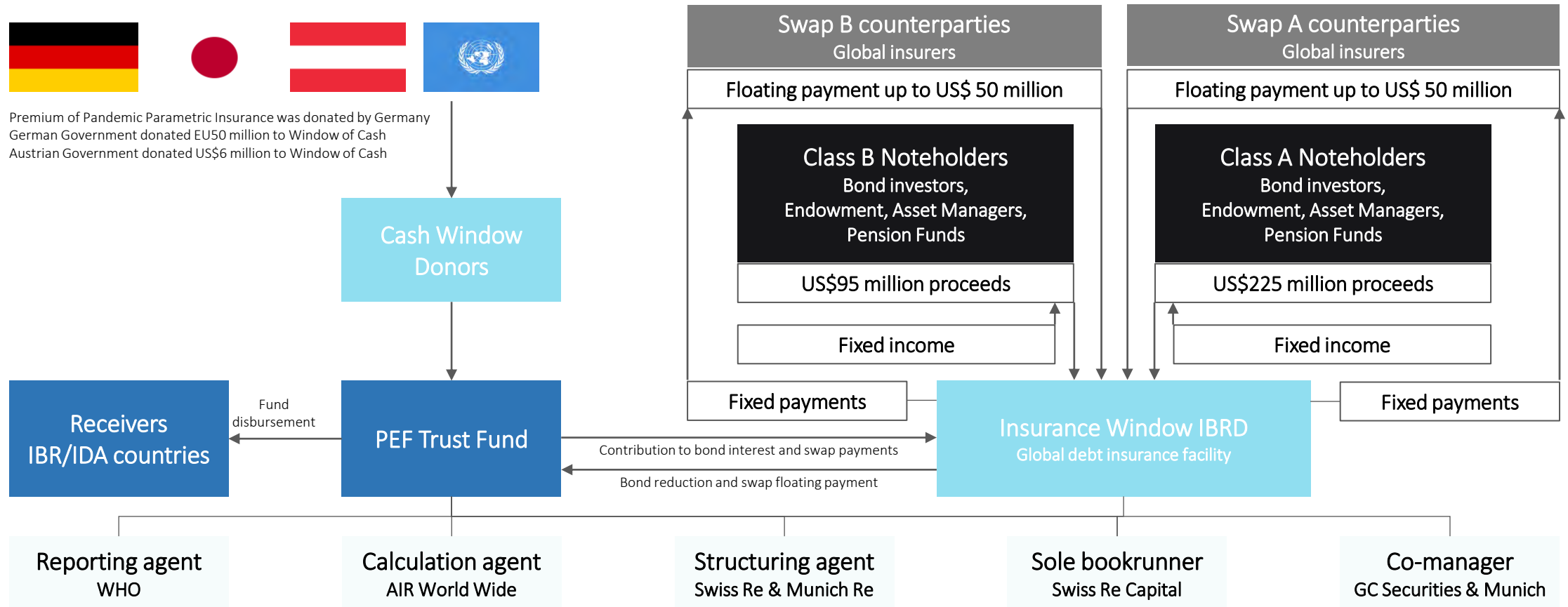
\*Simplified structure known here for info purpose only; \*\* Plus World Bank funding margin



# WB Pandemic Emergency Financing Facility (1/2)



Premium of Pandemic Parametric Insurance was donated by Germany  
German Government donated EU50 million to Window of Cash  
Austrian Government donated US\$6 million to Window of Cash



Pandemic Emergency Financing Facility is funded with a window of cash and a window of pandemic parametric insurance linked to bond and swaps

# WB Pandemic Emergency Financing Facility (2/2)

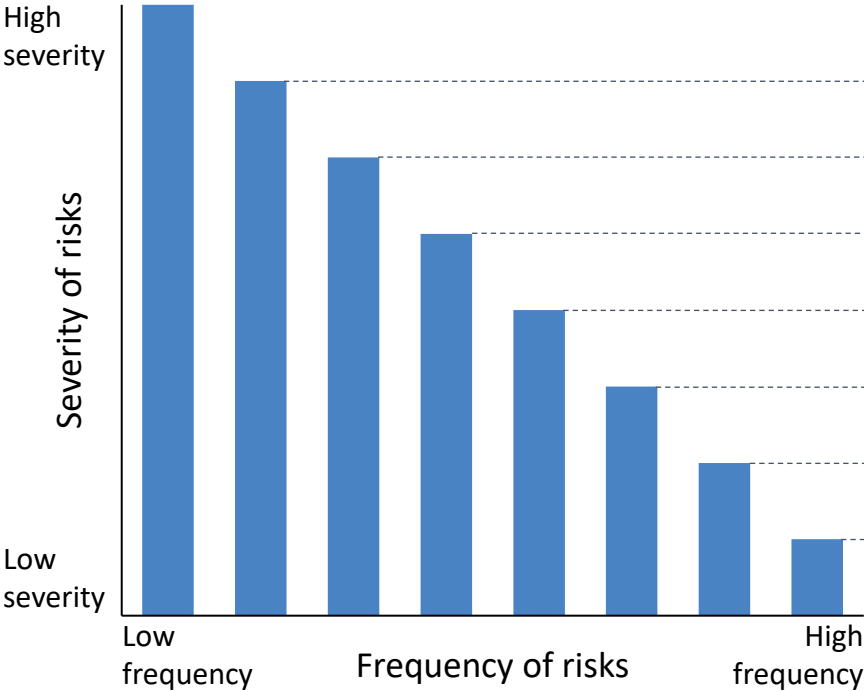
- **Purpose:** Contingent fund for the 77 poorest IDA countries to receive pandemic relief fund allowing 1.6 billion people rescued when a pandemic breaks out
- **Structure:** Window of Cash: EU50 million donated by German government and US\$6 million donated by Austrian government; Window of Pandemic Parametric Insurances: US\$425 million via 2 tranches of bond and 2 tranches of swaps at risks, and the premium of US\$107.2 million was donated by German and Japanese governments.
- **Triggers:** Insurance trigger conditions are exceedingly complicated. Trigger conditions of COVID-19 was not confirmed until April 27, 2020.
- **Claim:** US\$195.48 million, US\$132.5 million from Bond, and US\$46 million from Swaps
- **Remarks:** 1) pricing and capacity of bond for pandemic index insurance; 2) Claim payout does not prove a well leveraged fund as it is only 1.8 times of the premium; 3) Funding of premium is also not sustainable as it was donated by German and Japanese governments.

# 4

## Strategies and Proposal of Public Finance in Response to Disaster Risks in the PRC

# Public Finance in response to Disaster Risks (1/2)

Financing Instruments by Frequency and Severity



Disaster Risk Financing Instruments of Relevant Attributes to Disaster Risks	Attribute	New or Existing	Disaster Risks	
			Frequency	Severity
Special Purpose Treasury Bond	Contingent	Existing	Lowest	Highest
Parametric Solution Backed Bond	Contingent	New	Lower	Higher
Fiscal Budget Stablization Fund	Contingent	Existing	Low	High
Disaster Index Insurance	Contingent	New	Near Low	Near High
Contingent Credit	Credit	New	Near High	Near Low
Fiscal Budget Reserve Fund	Cash	Existing	High	Low
Funds for Defined Contingency Events	Cash	Existing	Higher	Lower
Reserves for Contingency Events	Cash	Existing	Highest	Lowest

Selection of reserves or contingent financing tools should be in alignment with conditions of relevant frequency and severity of the disaster risks identified in the risk profile of the public finance framework

# Public Finance in response to Disaster Risks (2/2)

Challenge in Reality:

- Frequency and severity of disaster risks are rising.
- Cat risks linked economic disasters and financial crisis are intensifying.
- Gaps of public finance in response to cat risks are widening.

Necessity of a new strategy and Model: to blend cash reserves and contingent financing instruments in response to disaster risks of relevant frequency and severity occurrence.

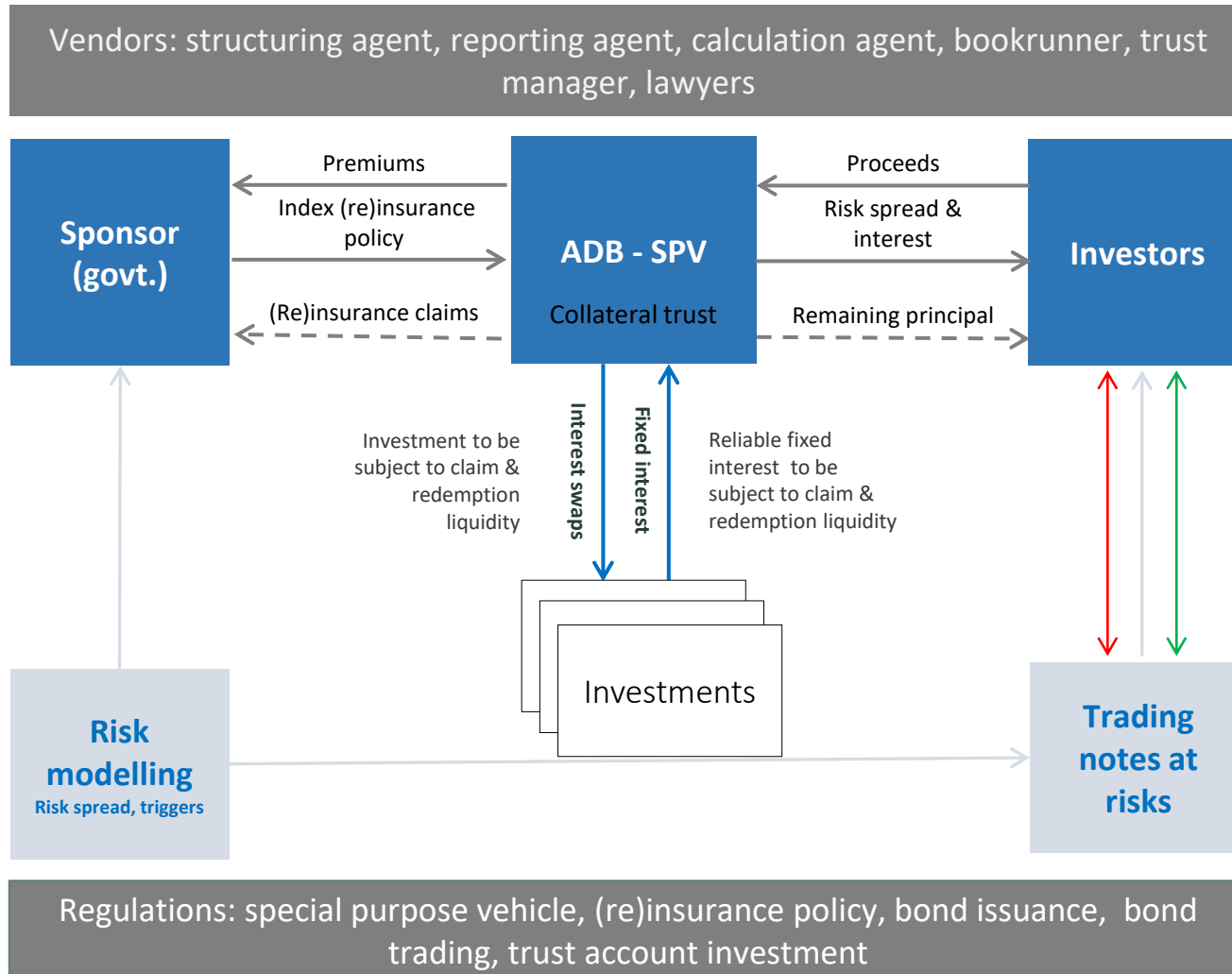
- To close the gaps of traditional cash reserves for contingent liabilities of the government for disaster reliefs and reconstructions
- To discipline the rigidity and balance of fiscal budgets
- To manage and minimize fiscal risks
- To integrate financial instruments into fiscal regime



# Proposition of pilots in China

1. Cat Bond backed Pandemic Parametric Insurance embedded in Public Finance in Response to Pandemic Disasters and Economic Crisis
2. Flood Emergency Financing Facility blended with Flood Parametric Insurance for Management of Flood disaster along Yangtze River and Yellow River
3. Agricultural Weather Index Insurance imbedded in Agricultural Production Disaster Relief Fund in response to Agricultural Disasters in the Main Grain Production Geographies
4. Public Safety Parametric Insurance embedded in Municipal Emergency Management Framework in response to such major public safety risks as fire and explosions
5. Framework of Public Finance embedded with Reserves & Contingent Credit & Disaster Index Insurances in response to all lines of disaster risks as a system for local government

# Pilot 1: Contingent Capital Instrument - Cat Bond



- **Purpose:** Pilot of China domicile and RMB denominated Bond backed Pandemic Parametric Insurance as contingent capital in response to contingent liability for public health disasters and economic crisis
- **Sponsor/Insured:** Government agencies
- **SPV:** to issue bond and insurance policy
- **Insurance:** Contingent financing tool embedded in public finance in response to public health and economic crisis
- **Bond:** Capacity for the Pandemic Index Insurance issued by SPV
- **Investors:** Domestic and international capital market, to act as investors and insurers

# Pilot 2: Flood Emergency Financing Facility



- Length: 6,300 km, the longest river in China and 3<sup>rd</sup> longest in the world; flows eastwards through 11 provinces
- Yangtze River Delta accounts for 10% of population and 20% of GDP, 50% of grain in China
- Cat flood beyond peak discharge of 80,000 m<sup>3</sup>/s: 1998, 1981, 1954, 1935, 1931, 1870. Peak discharge of 2020 flood reached 80,000 m<sup>3</sup>/s
- 1998 economic damage of US\$48 billion
- 2020 flood caused economic damage of US\$26.7 billion, affected population of 63.46 million, death toll of 219, collapsed houses of 54,000

- Flood Emergency Financing Facility of Yangtze Commission:
  - Cash Reserves for defined disaster relief functions
  - Special purpose funds
  - Donations
  - Traditional insurances for assets and public liabilities of Yangtze Commission
  - Flood Parametric Insurances as contingent capital tool in response to extreme flood disasters via capacity backed by bond at risks

# Pilot 3: Agricultural Weather Index Insurance

## Agricultural Weather Index Insurance to be imbedded in Agricultural Production Disaster Relief Fund of MOF

- **Rationale:** to be leveraged as contingent financing tool imbedded in the Agricultural Production Disaster Relief Fund, for enlarged capacity, symmetric hedge to agricultural risks of relevant frequency and severity, and enhanced rigidity and balance of budgets.
- **Authorities:** Finance Dept. of MOF, Agriculture Dept. of MOF, Finance Dept. of MOA
- **Concept :** A window of insurance is opened in the Fund. Less than 10% of the Fund to be used to procure agricultural weather index insurances for more than 10 times of the premium, covering those agricultural weather disasters prone geographies, allowing the Fund significantly enlarged in capacity
- **Structure:** Index of excessive rainfalls, drought, and low temperature are designed individually to match the respective trigger thresholds for each of the geographies, so as to trigger reliable claims in catastrophic events.
- **Validation:** Claim of 50% - 100% of Sums Insured in years of well-known cat events

# Pilot 4: Public Safety Parametric Insurance

## Public Safety Parametric Insurance blended into Municipal Emergency Management Framework

- **Rationale:** Such public safety risks as fires, explosions and sudden pollutions are key imminent concern of mayors, given such hazards may trigger widespread disasters and generate large contingent liabilities beyond the capacity of traditional reserve-oriented budgeting system
- **Authorities:** NDRC, MOF, relevant provincial and municipal governments
- **Concept:** A window of Public Safety Parametric Insurance is opened in Fiscal Budget Reserve Fund or relevant budget item, of which a proportion is set to pay premium in exchange for sums insured matching with the disaster related contingent liabilities of relevant frequency and severity of occurrence
- **Structure:** Index of public safety hazards is designed for trigger thresholds to match with the contingent liabilities of relevant frequency and severity of occurrence.
- **Validation:** Claim of 50% - 100% of Sums Insured in years of extreme disasters



# Pilot 5: Framework of Blended Financing Tools

## General Framework blended with reserves, contingent credit, and disaster index insurances for Emergency Management of local government

- **Rationale:** A general framework for local government emergency management department to transform traditional cash reserve budget model into a new model, integrated with relevant reserves, contingent credit and parametric insurances
- **Authorities:** NDRC, MOF, MOEM, relevant provincial and municipal governments
- **Concept:** Fiscal Budget Framework of Emergency Management is set to be composed of budget elements of reserves, contingent credit, and index insurances, which are designed to respond to various disaster risks of relevant frequency and severity of occurrence, as to match with contingent liabilities for disaster reliefs and post disaster reconstructions
- **Structure:** The payment conditions of the reserves, contingent credit, and index insurances in the new framework are designed in alignment with frequency and severity of various disaster risks.
- **Validation:** Claim of 50% - 100% of Sums Insured in years of extreme disasters

# Implementation

**Pilot implementation should rely on the reform oriented 'Trial and Implementation' policy, support of experts in relevant specialty areas, and acceptance of authorities**

- **Policy:** The pilots aim for reform of existing obsolete policies and regulations based on the reform oriented 'Trial and Implementation' policy.
- **Support:** NDRC, MoF, MoA, MoEM, CBIRC, CSRC, and local governments. Municipality of Ningbo is given by CBIRC the status of Base for Insurance Innovation and Experiment.
- **Implementation:** Feasibility Studies, Implementation Plans, Seminars and workshops, Approval of pilots, and Kick-off of relevant pilots.
- **Partnership:** It is proposed that ADB support the technical analysis, instrument design, and implementation of pilots.

# Discussion and Q & A





# Coffee Break





**Emma Fan**

Director  
Public Management, Financial Sector, and  
Regional Cooperation Division  
East Asia Department



# Innovative Financing to Enrich Sovereign Operations



**Xiaoqin Fan**

**December 2020**



# **Green and Sustainable Finance for Structural Transformation**

- Strategic importance: the 14<sup>th</sup> 5 Year Plan; international commitments, new CPS
- Instituting a permanent green growth model
- Engendering structural transformation

# Tremendous Financing Gaps

- **Tremendous financing gaps in Asia and the Pacific:** \$1.7 trillion/year, 2016 – 2030
- **The PRC:** green finance gap is at least \$116 billion per annum and rising
- **Additional fiscal costs:** phasing out polluting industries and the associate social costs (retrench and retraining costs)

# Recent Green Finance Operations



# Key Features of the Green Finance Operations

- **Leverage:** catalyze financing, \$1 from ADB for \$3-5 from other sources
- **“Wholesale” approach:** supporting a group of sub-projects instead of a single project
- **Viability and financial sustainability:** successful business models for project bankability and development impact; demonstration
- **Institutional development:** green finance systems, green standards and taxonomies, ESG frameworks, environmental and social management systems, gender mainstreaming
- **Flexibility:** energy efficiency, pollution reduction, climate change resilience, and so forth; multiple approaches



# Promoting Green and Low Carbon Growth

- **Energy:** composition, efficiency, lower pollution
- **Industries:** transitioning towards low carbon emissions, phase out polluting industries and activities and replacing them with “green” ones
- **Services:** promoting green buildings, green value chains, eco-tourism, smart transport
- **Negative emissions technologies:** carbon storage and capturing, reforestation, habitat restoration
- **Climate change resilience:** supporting adaptation

# Expanding into Blue Economies

## Importance:

- **The PRC:** a large maritime country, 18,000 km of continental coastline
- **ADB:** the Action Plan for Healthy Oceans and Sustainable Blue Economies (May 2019), \$5 Billion, Ocean Finance Framework (October 2020)

## Possible areas

- **Pollution control:** tackling plastic waste, waste water, non-point source pollution management, promoting circular economies
- **Ecosystem & natural resources management:** e.g. coastal, marine, and river ecosystems; marine protected areas
- **Sustainable marine and coastal development:** e.g. coastal communities, cities, infrastructure ; costal and marine tourism





# Readiness for Large Scale Disasters

- **Instruments:** Establishing appropriate public finance instruments to deal with the 'contingent' nature of disasters
- **Areas:** various, e.g. public health, floods in the Yangtze River basin, weather disturbances and other risks for agriculture, public safety risks

# Green Financing Instruments

- **Green loans and green banks:** promoting commercial banks' green lending business lines, adopting ESG risk-based credit models
- **Green funds:** complementing the national green fund, long term financing for capital market development
- **Green bonds:** e.g. transition bonds to phase out polluting and otherwise damaging industries and activities
- **Credit enhancement:** partial credit risk guarantee, making the green investment less risky and catalyzing market development

# Blue Finance Instruments

- **Blue loans:** loans from banks to support plastic reduction and substitution, marine tourism, reduction in land-based pollutions
- **Blue funds:** funds for ocean health, supporting a series marine economy activities
- **Blue bonds:** extending green finance principles to the marine economies
- **De-risking blue investment:** partial credit risk guarantees for investments targeting ocean health

# Disaster Risk Financing Possibilities

1. **Pandemic Parametric Insurance:** can be backed by catastrophic bond insurance
2. **Flood Parametric Insurance for Yangtze River and Yellow River:** as part of the Flood Emergency Financing Facilities
3. **Agricultural Weather Index Insurance:** imbedded in Agricultural Production Disaster Relief Fund
4. **Public Safety Parametric Insurance:** embedded in Municipal Emergency Management Framework
5. **Blended Reserve & Contingent Credit & Disaster Index Insurances:** imbedded in Disaster Budgeting System

# Operationalizing Innovative Financing Ideas

## Possible operations

- Green finance
  - ✓ transition financing facilities
  - ✓ climate change adaptation facilities in the Yellow River Basin
- Blue financing: ocean health financing facilities, esp. in dealing with plastics
- Disaster risk financing: parametric insurance facilities in suitable areas
- *Longevity financing*: inclusive longevity financing facilities

## Approaches

- loans, bonds, funds, or credit enhancement instruments, depending on the specific needs; through financial intermediation.
- Exploring opportunities for blended financing

# Blended Financing

- **One ADB, public and private sector:** combining expertise on sovereign and nonsovereign operations
- **Recent examples:**
  - The Pacific: Regional Renewable Energy Investment Facility (2019)
  - East Asia: Shenzhen Water Project (2020)
  - Southeast Asia: Vietnam Binh Duong Water Treatment Expansion Project (2020)
- **Pushing the boundary as One Team:** exploring the opportunities to enrich and improve the operations



# Suggested Next Steps

- **NDRC/MOF guidance in country programming:** Including green finance, blue finance, disaster risk financing, (and longevity financing), as part of the program.
- **Identification:** ADB and relevant provinces, ministries, and financial institutions work together to identify innovative financing operations for the next CPS
- **Collaboration:** with development partners
- **Communication:** Regular communication with NDRC and MOF

# Going Forward

- The 14<sup>th</sup> 5 Year Plan, international commitments, and new CPS: great impetus to transition into a greener and more sustainable economy.
- Innovative financing operations: translate ideas into investment and results.





# Jackie Surtani

Director  
Infrastructure Finance Division II  
Private Sector Operations Department







# Expanding Green Finance, Blue Finance, and Disaster Risk Financing for Innovative Operations

16 December 2020

# REG: AC Energy Green Bond Project

## Transaction Highlights

- ADB acted as an anchor investor in AC Energy's maiden green bond issuance.
- Unlocking over 2GW of solar and wind.
- First listed certified climate bond in Southeast Asia.
- Successful follow-on perpetual offering.

## Development Impacts

- Ensure that bonds will comply with the Green Bond Principles and the Climate Bonds Standard.
- Helped to make green bonds and climate bonds better known in the region.
- Helps demonstrate support for alternatives to project loan markets for financing clean energy projects.

Client	AC Energy
Countries	Philippines, Indonesia, Viet Nam
Signed	31 January 2019
Sector	Clean Energy (solar and wind)
Modality	A loan
Bond size	\$300 million (5 yrs) + \$110 million (10 yrs)
ADB anchor investment	\$20 million (10 yrs)





# REG: Indorama Ventures Regional Blue Loan Project

## Description

**Project:** \$300 million PET<sup>1/</sup> recycling capacity expansion

**Countries:** Thailand, Philippines, Indonesia and India

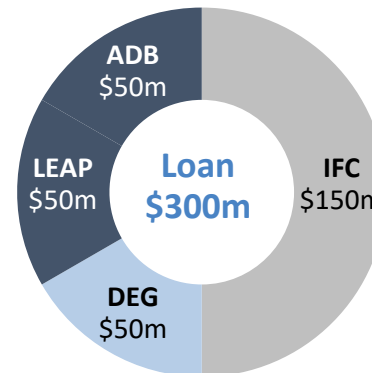
**Company:** Indorama Ventures PCL (IVL), leading PET recycler and one of the world's largest vertically-integrated polyester value chain producers.



## Unique Features

- ✓ **ADB's First Blue Loan Tackling Ocean Plastic Pollution**  
Recycling PET resin can reduce energy consumption by up to 79% and GHG emissions by up to 67%.
- ✓ **Creation of Circular Economy for PET**  
Help the creation of a circular economy for PET in ADB's DMCs and have a demonstrational impact on industry best practices in the region.
- ✓ **Strong One ADB Story**  
Maximize synergies as "One ADB" for development impact, led by SERD/TRM on regulatory standards and testing/certification capacity to allow recycled PET in food packaging in Thailand.

## Transaction Details



**Structure:** Unsecured corporate loan with guarantee provided by IVL (TRIS credit rating AA-)

**Tenor:** 8 years

**Signed:** 24 November 2020



# Supporting One ADB Operations

- Positive experience to date
- Exploring under the new CPS
- Enriching green, blue, and disaster risk management operations

# THANK YOU!

Jackie B. Surtani

Director

Infrastructure Finance

East Asia, Southeast Asia and the Pacific

Private Sector Operations Department

[jsurtani@adb.org](mailto:jsurtani@adb.org)

# Discussion and Q & A





# Summary and Closing

---

**Mr. Zhang Zhiqing**

Deputy Director General  
National Development and Reform Commission

**Mr. Han Bin**

Deputy Director General  
Ministry of Finance (TBC)

**Mr. James Lynch**

Director General  
East Asia Department, Asian Development Bank

