

CLIMATE
POLICY
INITIATIVE

The Potential for Scaling Innovative Climate Finance in China

Co-Hosted with:

giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

On behalf of



Federal Ministry for the
Environment, Nature Conservation,
Building and Nuclear Safety

of the Federal Republic of Germany

Agenda

Climate Finance and Innovation in China

Opening Remarks

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The Global Innovation Lab for Climate Finance

Lab Overview

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Discussion and Q&A

Climate Finance and Innovation in China

Speakers:

Yiting Sun, Standing Committee Member of **CIFA**

Shanning Dong, Director of Green Finance, **Bank of Jiangsu**

Marilyn Waite, Program Officer in Environment, **Hewlett Foundation**

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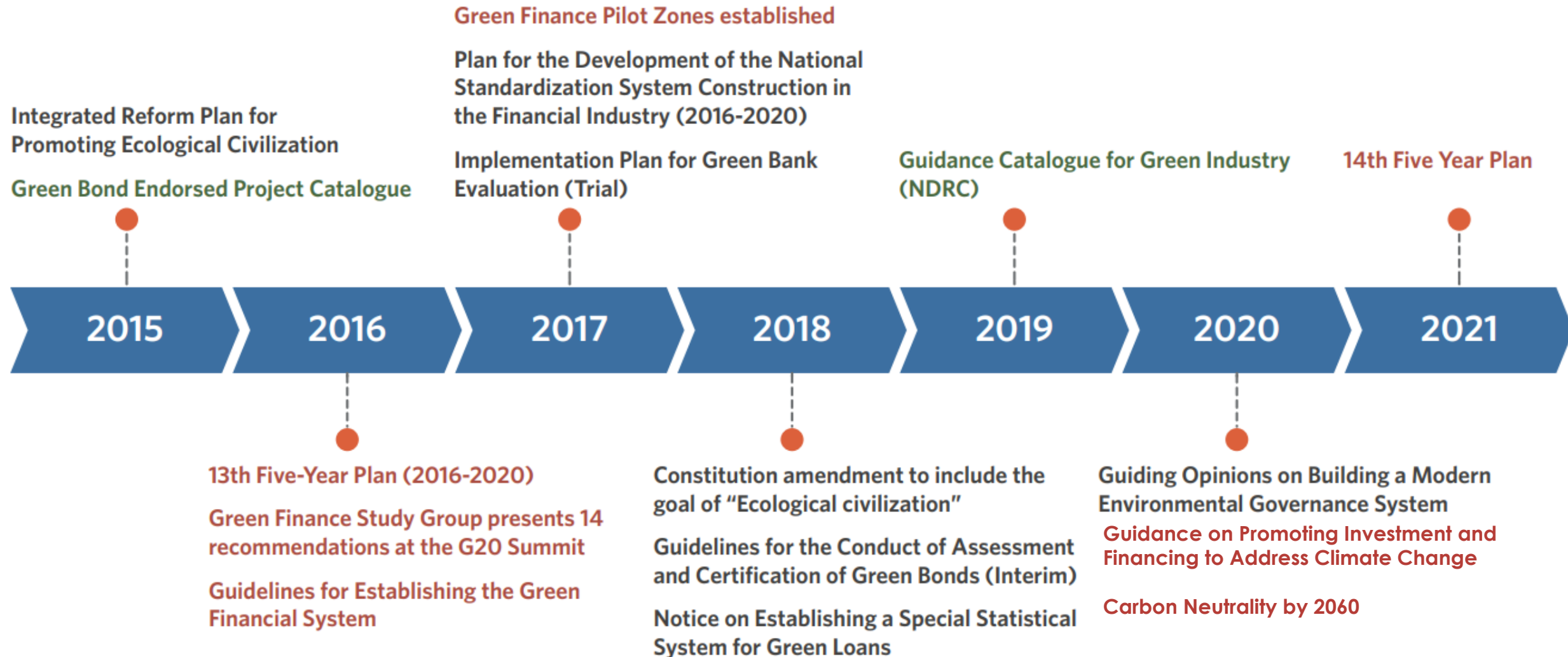
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The State of Climate Finance in China

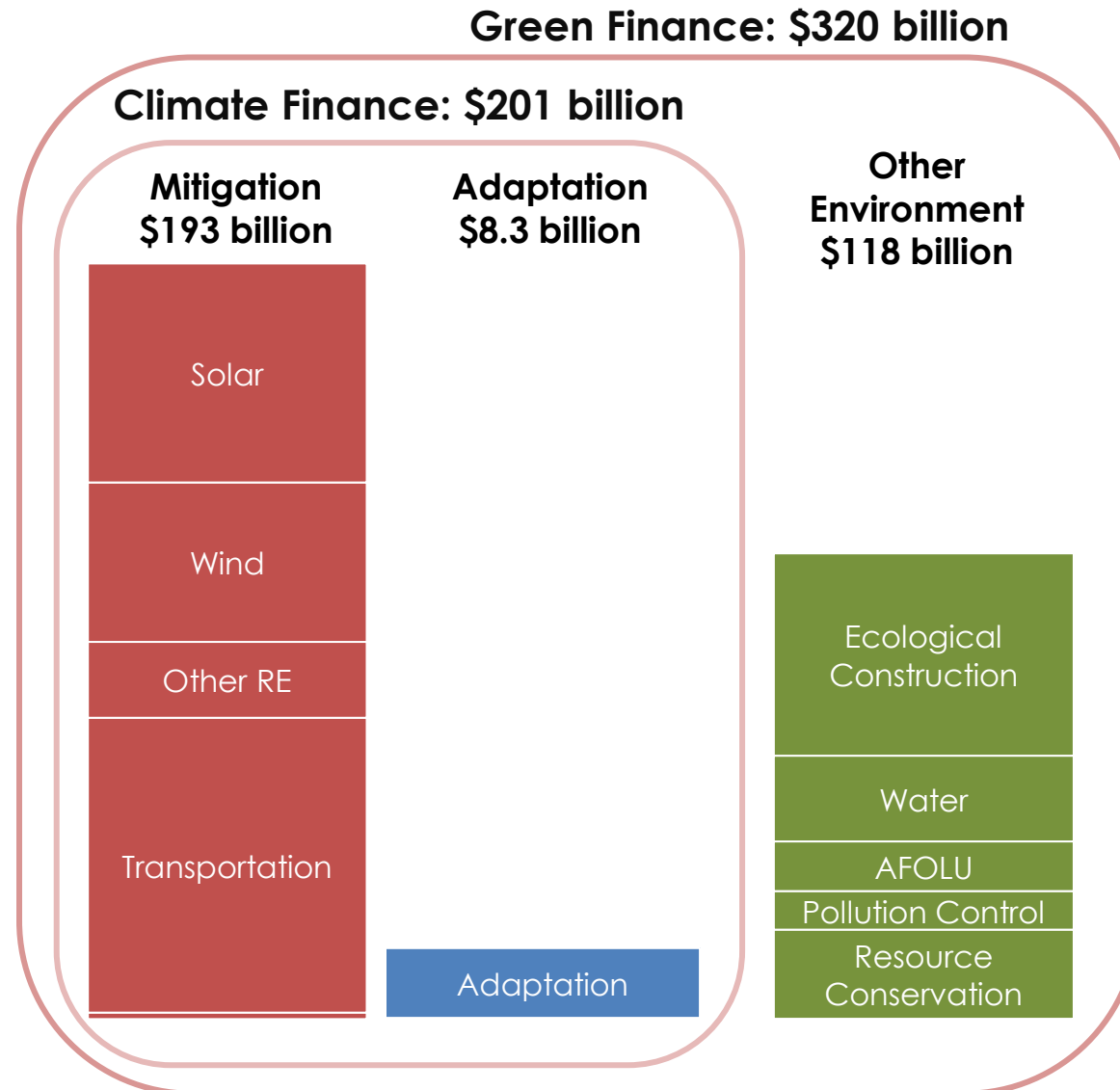
Speaker:

June Choi, Analyst, **Climate Policy Initiative**

China achieved significant progress in the past five years



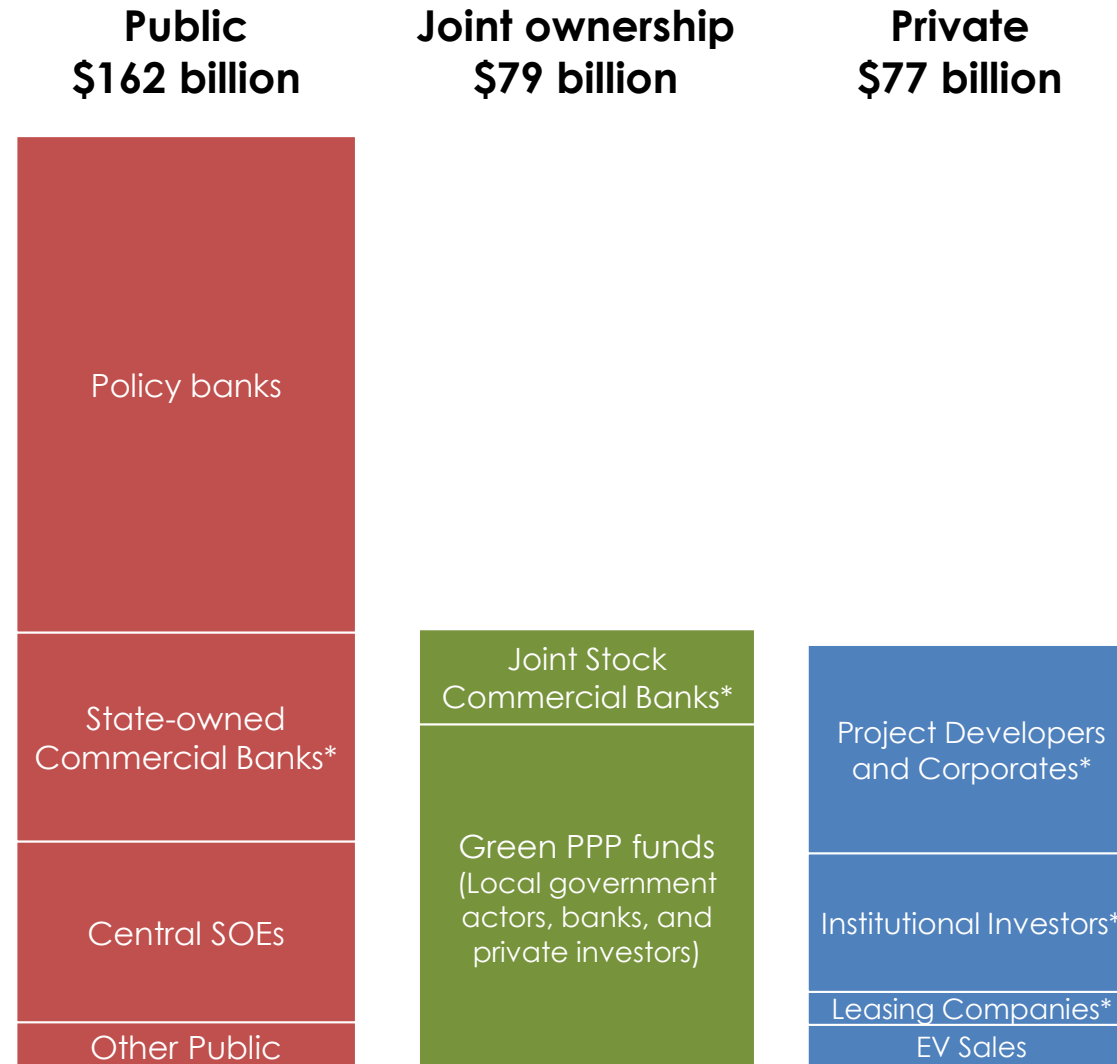
Green finance in China averaged \$320 billion in 2017/2018



**Data represents domestic sources of finance.*

Source: Global Landscape of Climate Finance (CPI), CBIRC, WIND

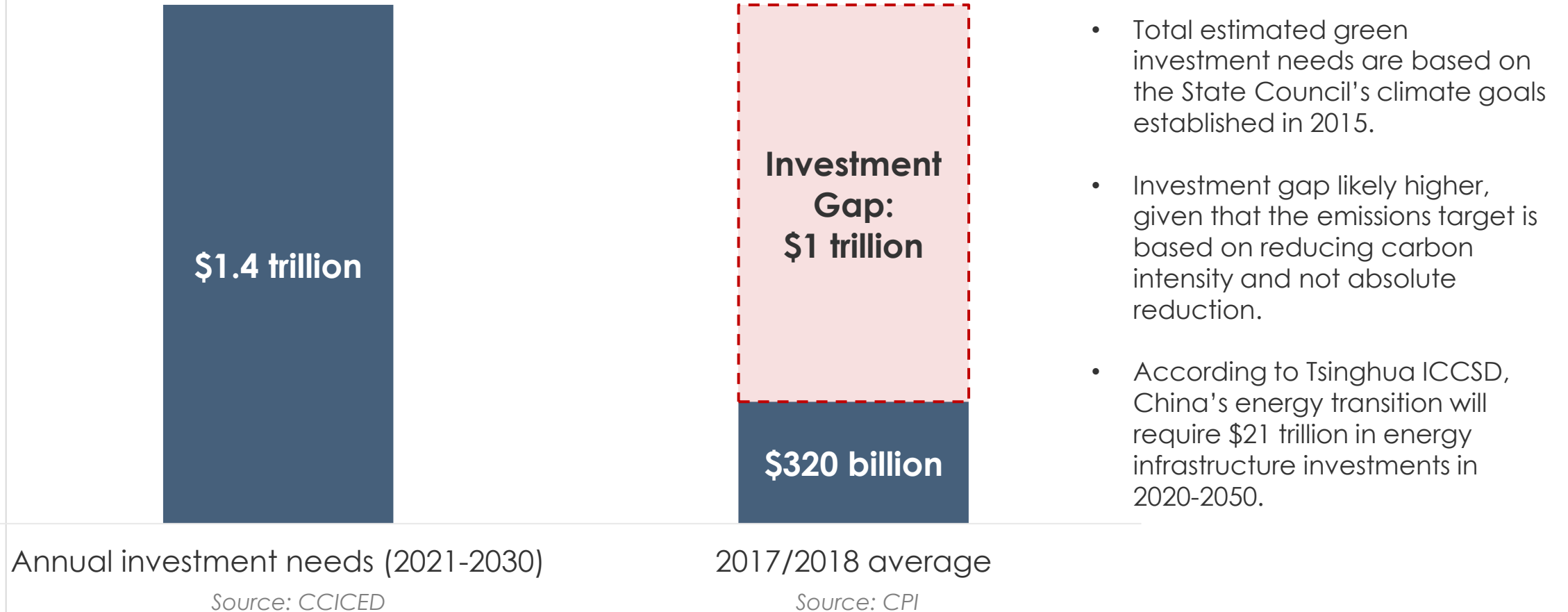
Public actors were the largest contributors of green finance



* Estimated breakdowns

Source: Global Landscape of Climate Finance (CPI), CBIRC, WIND

China faces an annual \$1 trillion investment gap in green investment needs



Opportunities

- **Enhancing incentives for exploring innovative structures**
- **Increasing diversity of capital**
- **Improving access to formal financing channels**
- **Increase visibility and credibility for green project pipelines**
- **Reducing policy uncertainty**

The Global Innovation Lab for Climate Finance

Speaker:

Carla Orrego, Project Manager, **Climate Policy Initiative**



The Global Innovation Lab for Climate Finance

Secretariat

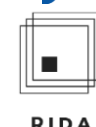


A public-private partnership: The Lab brings together over 70 institutions to address the sustainable investment gap

FUNDERS



MEMBERS



PAST FUNDERS



Since 2014, the Lab has supported 55 solutions that tackle investment barriers in the **most critical sectors and regions** for action on climate change

Number of Lab instruments (including 2021 class):



Renewable
Energy
22



Sustainable
Cities
21



Climate
Risk
18



Agriculture, Land
Use, Forestry
17



Energy
Access
11



Energy
Efficiency
10



Africa
24



Asia
22



Latin America
20



Global
7



\$2.45+ bn

mobilized by
49 instruments for climate
action in developing countries



\$370+ mn

invested by Lab Member institutions

\$2.0+ bn

catalyzed in
additional investment



Lab instruments have
mobilized

200x

what funders have invested
in the Lab Secretariat

The Lab model could be an effective approach to help foster China and the broader region's transition to net zero.

Strong opportunities for innovation

- Small and medium-size banks
- Green funds
- PPP structures
- Green finance pilot zones
- BRI countries

Growth potential for climate finance

- Fintech
- Retail investing
- Increasing awareness of green financing instruments
- Increasing channels for foreign capital participation

Catalyze more **financial innovation** and mobilize more **climate investments**

BREATHE BETTER BOND INITIATIVE



March 2021

Creating Markets, Creating Opportunities

CONTACT INFORMATION



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- Steve and Max work for the Climate Business Department (CBD) of the International Finance Corporation (IFC), the private sector arm of the World Bank Group.
- CBD has a broad mandate of supporting and increasing IFC's climate-related business, including new climate investment product development.

THE URBAN AIR POLLUTION PROBLEM AND CHALLENGE

The Problem:

- Cities are at the nexus of climate change and air pollution – and have made growing commitments to tackle both challenges
- 97% of urban populations in low- and middle-income countries are exposed to unsafe air quality, resulting in about 7 million premature deaths per year
- Cities are responsible for 70% of CO2 emissions globally



The Challenge:

- Addressing air pollution requires diverse capabilities including air quality monitoring and apportionment analyses, project preparation and funding capability
- Significant funding requirements may require private sector involvement

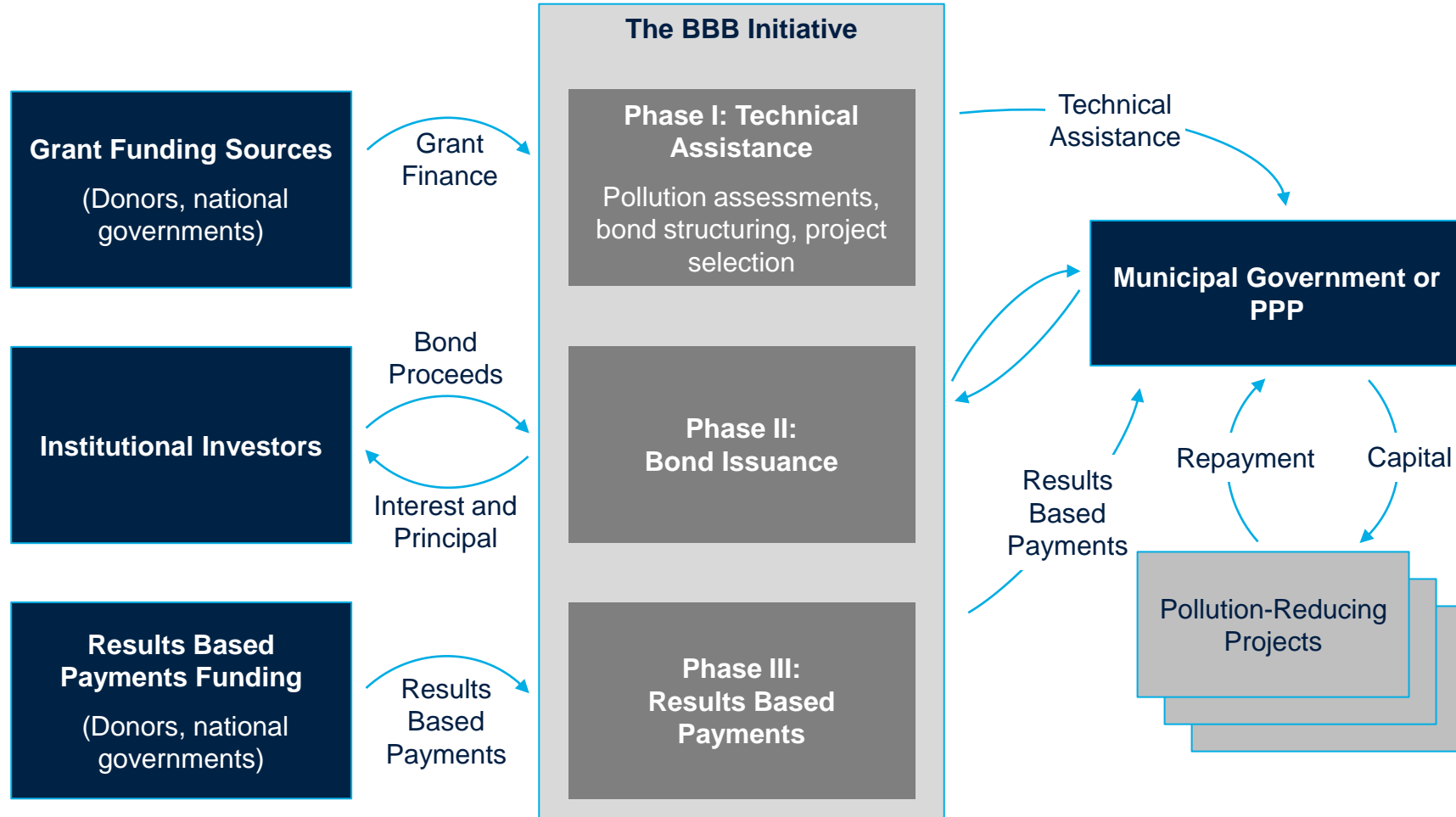
THE SOLUTION – THE BREATHE BETTER BOND

The Breathe Better Bond (BBB) is a solution that IFC could offer to its sub-national clients to improve air quality.

The BBB is a fixed income security issued by urban local authorities to provide funding for projects that reduce both air pollution and GHG emissions. The BBB will have two components:

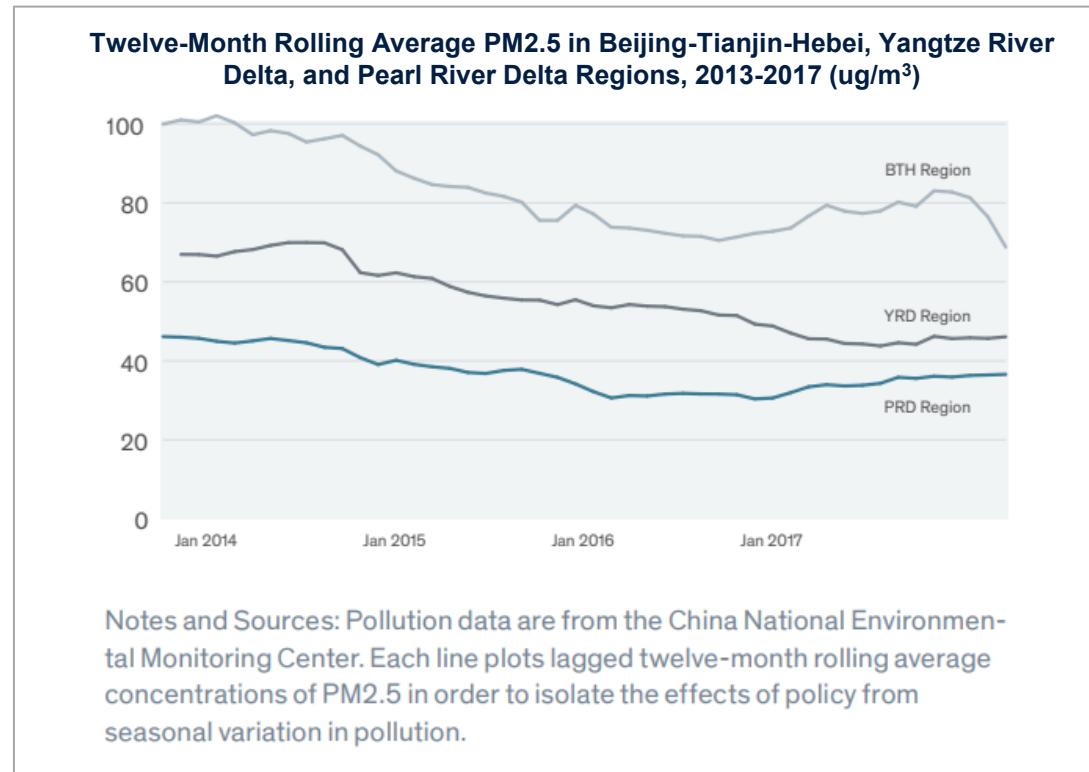
1. **Technical assistance** for capacity building for activities such as emissions inventory, project preparation, debt issuance, etc.
2. **Financial support** including an anchor investment by IFC, and potentially concessional funding (results-based payments, blended finance)

BBB STRUCTURE



BBB RELEVANCE FOR CHINA

- The National Action Plan improved pollution levels, with PM2.5 concentrations falling by an average of 36% from 2013 levels.¹
- While the COVID-19 pandemic temporarily reduced pollutant levels, air pollution is increasing again as consumer demand and industrial activity rebounds, highlighting the need for additional solutions.



1: "Is China Winning its War on Pollution?", Air Quality Life Index; March 2018

WORLD BANK HEBEI AIR POLLUTION PROGRAM

- **What was the Program?** From 2016 – 2019 the World Bank implemented its \$500m Hebei Air Pollution Prevention and Control Program in conjunction with the Central and Provincial Government. The Program identified key sources of pollution in Hebei province and designed solutions to reduce PM2.5, SO2, and NOx pollution levels. Sectors targeted included industry, transport, agriculture, and clean cookstoves.
- **What were the results?** The Program exceeded its pollution reduction targets, reducing air pollution by 840k tonnes and GHG emissions by about 5 million tonnes per year. This helped reduce pollution in Hebei Province and JingJinJi region by ~ 35% from 2015-19.
- **What were the lessons learned?** Strong analytical frameworks, improved local capacity, and refined implementation arrangements were effective in reducing harmful emissions and can serve as model for future programs.

Through the BBB, IFC is can leverage the lessons from WB program and introduce private sector funding to continue pollution reduction efforts by Chinese sub-national governments.

BBB RELEVANCE FOR CHINA

- Several cities having joined climate-focused coalitions such as C40 or are low-carbon pilot cities.
- Local government bond issuances have increased since 2015, with special purpose or local government financing vehicles serving as the primary financing mechanisms.
- Financing mechanisms lack a framework to track the environmental benefits and as a result, green municipal financing has been limited.
- With air pollution as a national priority, and good access to capital and strong project execution capabilities, several cities are potential issuers of a Breathe Better Bond

Select C40 Member Cities



Key Sectors



Waste Management



Solar Generation



Electrified Transport



Building Energy Efficiency

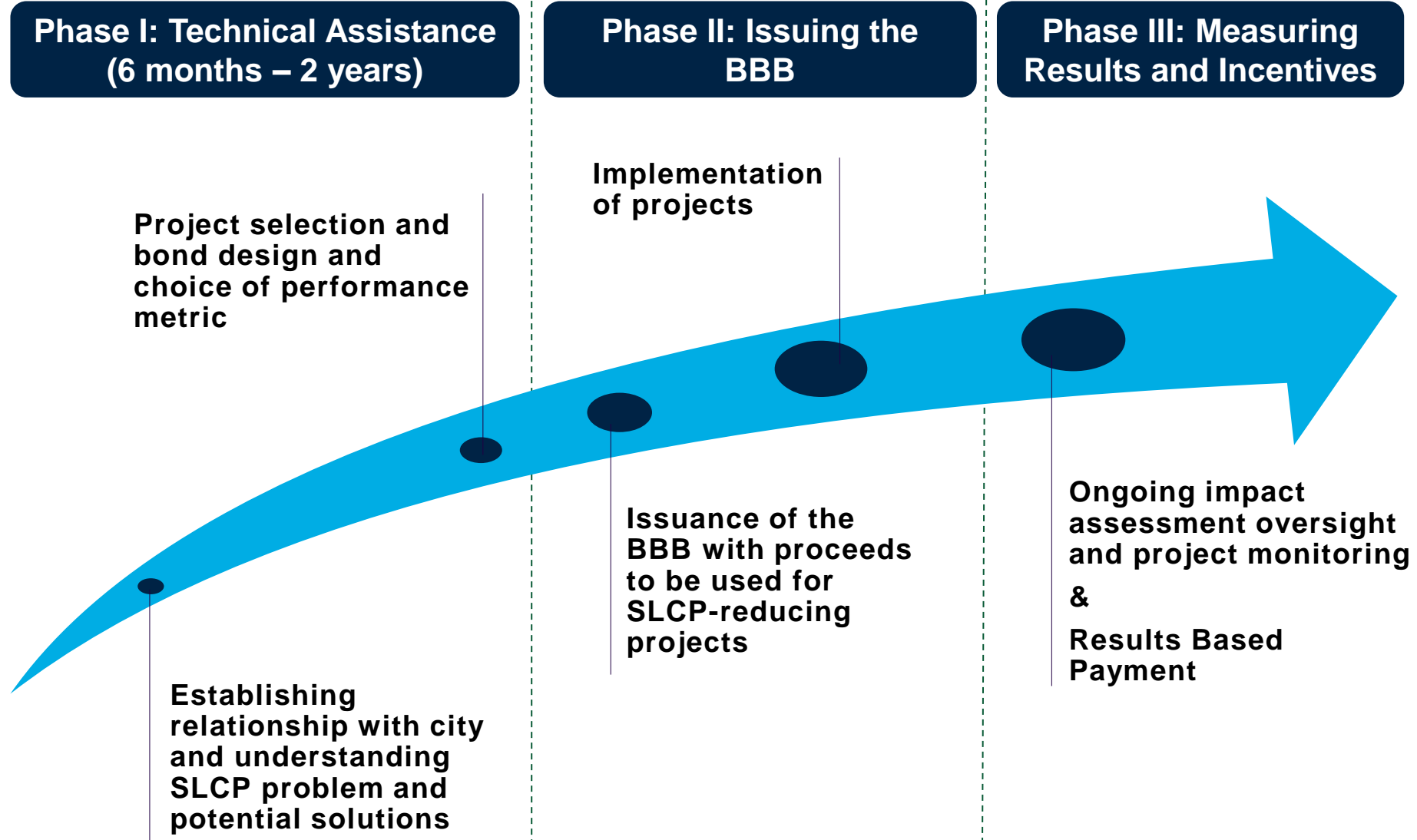
SIMULATION CITY CASE STUDY

IFC used a pollution model to assess the impact of three projects implemented in a hypothetical South Asian city.

In USD millions				
Mitigation Actions	Starting Year	Debt	Equity	Total
<u>Electricity Generation</u> – Project to install a 200MW Solar Plant.	2021	101	34	135
<u>Transport</u> – Replace 300 diesel buses with 250 electric trolleys.	2021	155	52	207
<u>Waste</u> – a plant that can process 420,000 tons of municipal solid waste.	2021	131	44	175
	<u>Total</u>	387	130	517

- Using recent investments as a benchmark, IFC estimated the capital required to achieve specific changes in the energy mix
- The pollution model then assessed the impact on GHG emissions and several types of pollutants
- Conclusion: A \$130 million BBB issue coupled with \$387 million of project debt would result reductions of 3.4 million tons of CO2 and almost 2 million tons of PM2.5 over 8 years.

BBB IMPLEMENTATION PATHWAY



OPPORTUNITIES FOR INVOLVEMENT

Stakeholder Type	Expected Role
State / Municipality	BBB Issuer
Grant Funders (Donor/Philanthropy)	Phase 1: Technical Assistance
Institutional Investors	Phase 2: Bond Issue
Results Based Payer (Donor/Philanthropy)	Phase 3: Results Based Payments



RISCO

Restoration Insurance Service Company



The Team



Conservation International is a global environmental non-profit. Our Asia-Pacific Division has over 200 employees, is headquartered in Singapore, and has field offices in 8 countries, including China. Our Conservation Finance Division has deployed more than US\$ 500 million in innovative conservation finance.



Romas Garbaliuskas



Emily Pidgeon



Ricky Nunez



Allie Goldstein

The RISCO team has expertise in conservation finance, mangrove conservation, and climate risk. We are hiring a Project Director with insurance expertise.

Mangroves are critical for climate adaptation and mitigation yet continue to be deforested.

- Globally, mangroves protect more than 18 million people and **prevent property flood damages of US\$ 65 billion/yr.**
- Mangroves also provide enormous **mitigation potential** (up to 10x more than terrestrial forests).
- However, **mangrove cover has declined 30-50% in past 50 years** due to conversion to aquaculture coastal development, or other uses.
- Reliance on **scarce public finance** for conservation and restoration is **unsustainable.**

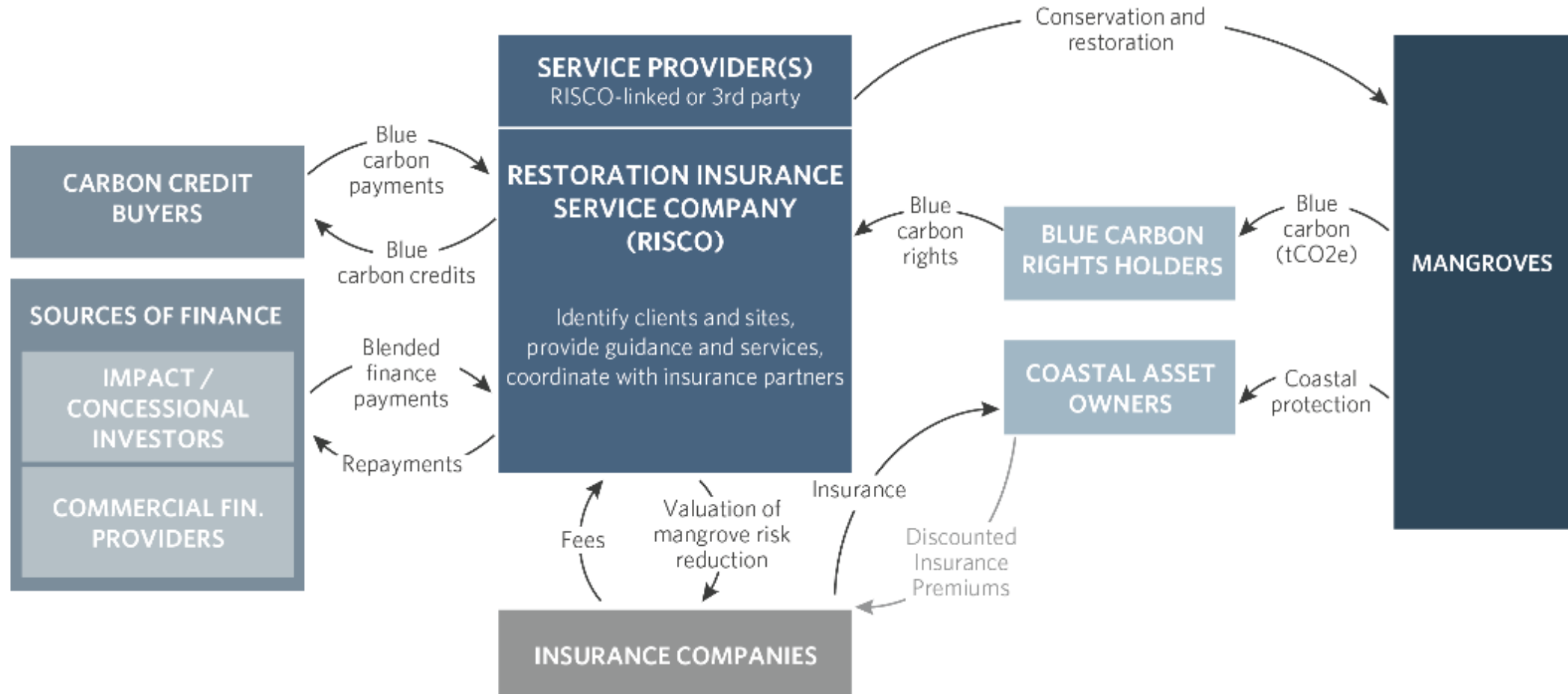


RISCO is a social enterprise that invests in mangrove conservation and restoration in areas with high-value coastal assets, protecting blue carbon and reducing flooding and property damage risk.



RISCO Mechanics

RISCO identifies sites and invests in mangrove conservation and restoration, securing revenue from insurance companies who accrue mangrove risk reduction benefits and from the sale of blue carbon credits.



Chinese Market

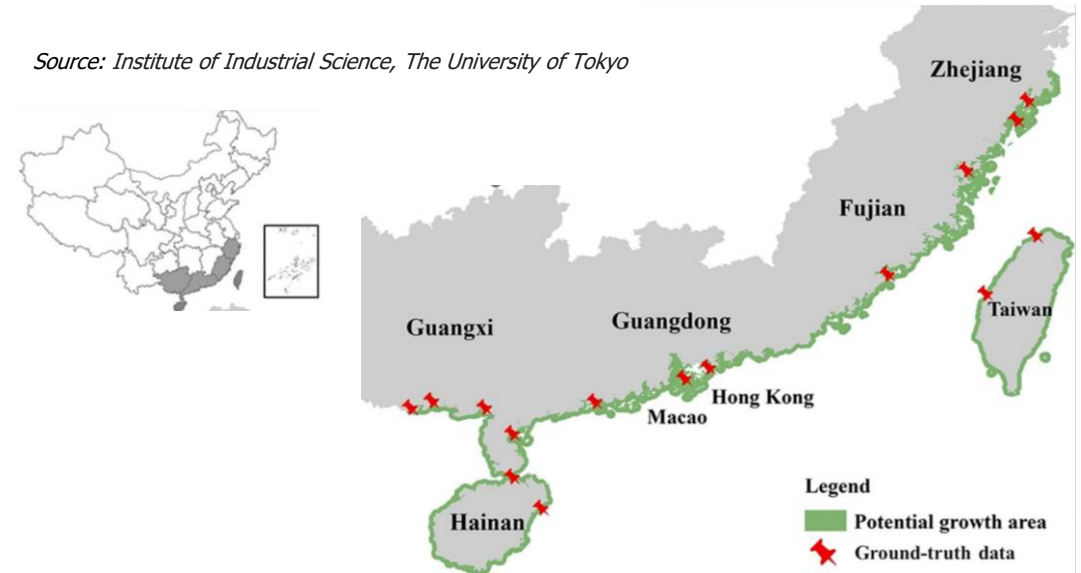
Insurance Sector

- Rapid development of the industry, with direct premium income tripling between 2012-2019
- Significant catastrophe insurance protection gap

Hazards

- Rapid economic development along coasts put an increasing amount of infrastructure at risk
- In 2019, 11 storm surges caused RMB 11.7 billion in direct economic losses

Source: Institute of Industrial Science, The University of Tokyo



Mangroves

- About 15,000 hectares of mangrove forest protect China's coastline
- A lot of deforestation in the 1960s-1990s, but coverage now increasing significantly

The RISCO model proposes a **nature-based solution** that can also be applied to **other ecosystems**, such as terrestrial forests

Impact

Modeled RISCO site potential impact: **Pilot of 4,000 ha in the Philippines**

Mitigation Actions	Metric
<i>Emissions reductions</i>	600,000 tCO ₂ over 10 years
<i>Reduce flood risk</i>	> 7,000 people
<i>Flood reduction value</i>	\$12.8 million (\$3,200/ha)

At scale, RISCO could generate **US\$ 200-280 million in insurance sector and blue carbon revenue** over a 10-year period

Implementation Pathway

The RISCO model aims to implement several pilots across different countries with strong potential to be expanded and replicated.

Current phase



Progress

- Developing first RISCO pilots in the **Philippines (2021)**
- Supported by **Swiss Re Foundation**

Next Steps

- (1) **Asia:** China, Indonesia, Vietnam
- (2) **Latin America:** Costa Rica

Moving Forward

1

Insurance Companies

Looking to engage with innovative insurance companies interested in using nature-based solutions to reduce risk and improve resilience

2

Grant Funding

Seeking grant funding for additional pilot development in Asia (\$1-1.2 M)

2

Impact Investors

Looking for impact investors to invest in RISCO pilots (debt/equity), once business plans are complete (2022-23)



Cooling as a Service
Refresh the planet

Market Transformation: Servitisation of Cooling Industry

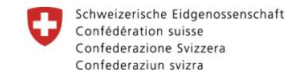




*Driving investment in
sustainable energy*

Who we are and what we do?

- The Basel Agency for Sustainable Energy (BASE) is a Swiss not-for-profit founded in 2001 whose mission is to develop innovative, actionable financial strategies and market-driven solutions to unlock investment in Sustainable Energy and to tackle climate change.
- Specialized Partner of UN Environment and member of United for Efficiency (U4E).
- We work with a variety of players and acts as a bridge between the public and private sectors.
- Partners: multilateral development banks, national banks, financial institutions, development agencies, intergovernmental and philanthropic organizations.





The Cooling Market

Cooling demand is rising dramatically

Cooling demand will **triple by 2050**, from **10 to 30% of global electricity consumption** (= China's electricity use today) *

Market of **6.9 trillion USD** over next 30 years (**230 billion USD/year**) that could be invested in clean efficient cooling.

*IEA, The Future of Cooling, 2018





ENERGY EFFICIENCY

SERVITISATION - COOLING AS A SERVICE INITIATIVE (CaaS)

The business model aligning people, profit and the planet.



Design and selection of solution based on long term considerations.

Key to a circular economy.

- Maximising operating efficiency makes business sense for the provider.
- Enables a system thinking approach.
- Maximises reutilisation of equipment, and reuse of components through modular designs.
- Encourages providers to keep innovating also for existing customers.

Different to Energy Savings Contracts

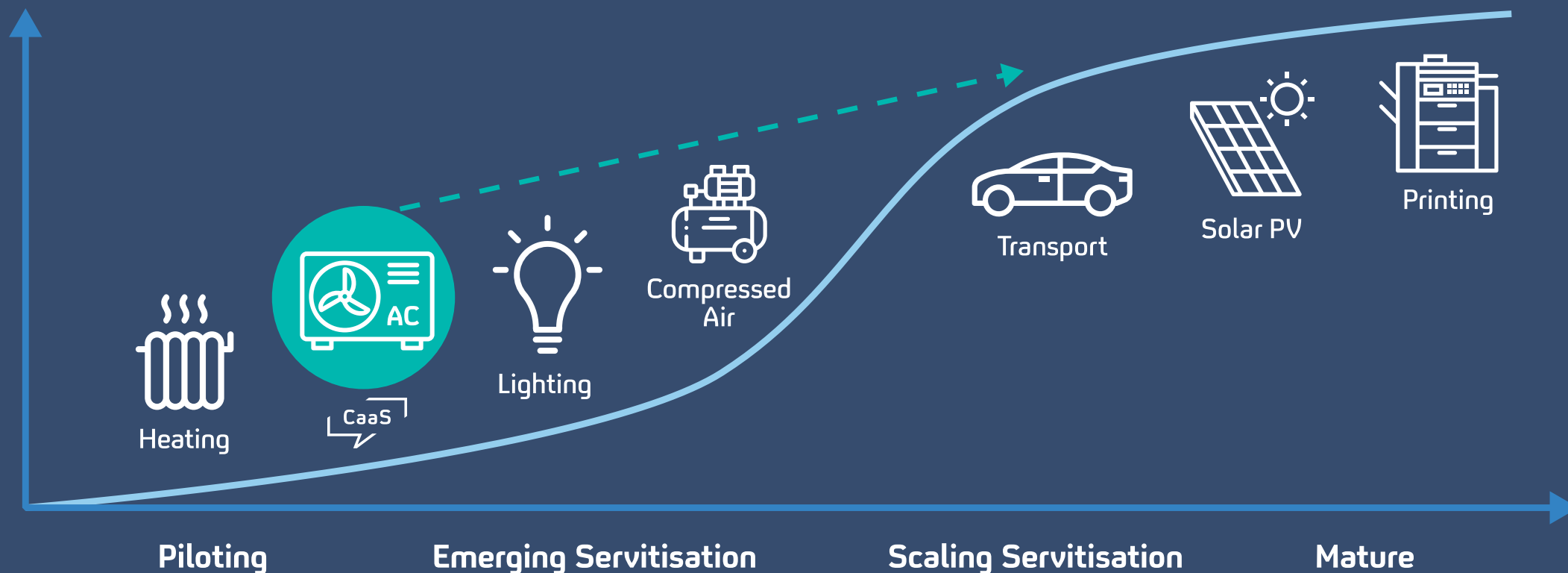




Servitisation

Market Penetration

Mega-trend growing rapidly across equipment industries





KEY ACTORS AND BENEFITS



Cooling users

- No capital expenditure.
- Off-balance service.
- Full transfer of performance risks.
- User can focus and invest in core business.
- Full out-sourcing of cooling service.



Technology Providers

- Increase demand and deployment of most efficient technologies.
- Predictable and continuous revenue streams.
- Bring additional value by selling outcome instead of selling equipment and parts.



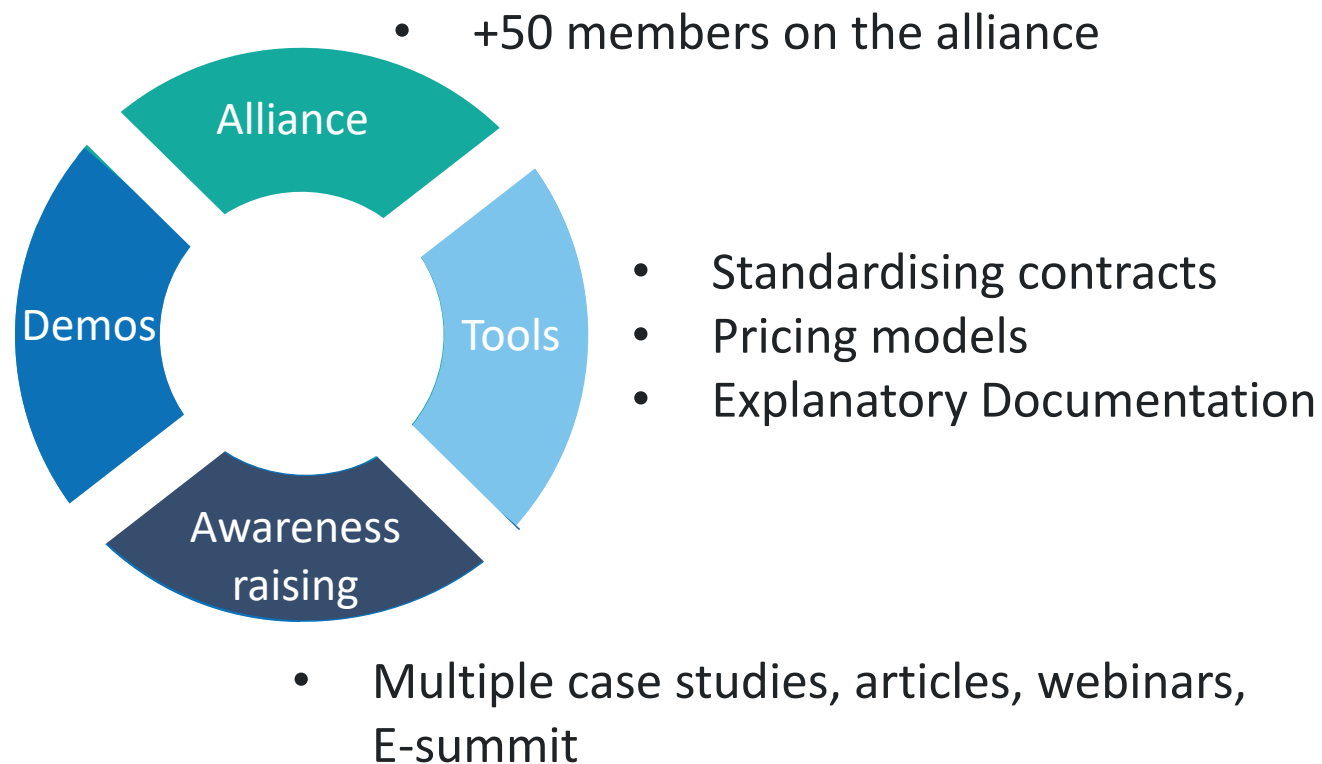
Banks / Investors

- Opportunity to place green funding..
- Investing in assets generating cashflows.
- Become front-runner to finance servitisation models (new trend).



- 14 companies supported to implement CaaS

CaaS Initiative Pillars





Case Studies

Real Estate Complex in India

- *Reducing energy use by 30%*
- *Fully powered by Solar*
- *Low GWPs*

Data center in Singapore

- *Reducing energy use by 20%*
- *Low GWP chillers*

Industrials in South Africa

- *Reducing energy use by 20%*
- *Powered by Solar*

Cold Storage in India & Nigeria

- *Reducing emissions up to 49%*
- *Reducing spoilage 20-30%*
- *Increasing revenues for farmers by 30-50%*



ELPROPARK (Real Estate) in India

Data center Singapore



Afrupro South Africa Industrial



CoolCrop in India

ColdHubs Cold Storage in Nigeria





Opportunity in China



- **Cooling demand continues to grow**

From 2017 to 2030, the installed capacity in China is estimated to double.

- **Strong potential emission reductions**

EE and low-GWP cooling could enable cumulative GHG emissions reductions of 16.9Gt CO₂e from 2020 to 2030 (equivalent to 2 billion homes' energy use for one year).

- **Favorable policies**

CaaS is consistent with China's long-term endeavor to improve energy efficiency of refrigeration and air-conditioning equipment.



Cooling as a Service

Refresh the planet

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Q&A and Discussion

Moderator:

Barbara Buchner, Global Managing Director, **Climate Policy Initiative**

Q&A and Discussion



Cooling as a Service

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Restoration Insurance Service Company (RISCO)

Conservation International
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Breathe Better Bonds

International Finance Corporation
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Discussion Questions

What are some key opportunities for replicating innovative instruments in China? Which specific factors should be considered?

在中国应用这些创新型的解决方案的机遇是什么？
有哪些具体因素需要考虑？

What are some of the main challenges or bottlenecks that may hinder the replication of innovative instruments in China?

在中国应用这些创新型的解决方案的挑战或瓶颈有哪些？

How can we further mobilize investments in climate finance solutions?

如何能进一步扩大对绿色/气候金融解决方案的投资？

CPI: www.climatepolicyinitiative.org

The Lab: www.climatefinancelab.org

Global Landscape of Climate Finance:
www.climatefinancelandscape.org



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謝謝！