

# Ready-to-Fund Resilience



AMERICAN SOCIETY OF  
ADAPTATION PROFESSIONALS

---



Climate  
Resilience  
Consulting

# Welcome

# Agenda

**12:00** Welcome

**12:05** Pair Exercise

**12:15** Introduction to Blended Finance and Project Bundling in the Adaptation & Resilience Context

- *Andrew Eil, Principal, Andrew Eil Consultant*

**12:45** Break

**12:55** Q&A with Andrew

**1:00** Small Group Discussion

**1:20** Closing Reflection and Evaluation

**1:30** End

# Learning Objectives

1. Match public and private funding and finance opportunities to various stages of project life.
2. Evaluate opportunities to bundle projects to maximize financing and funding possibilities.
3. Identify innovative funding and finance mechanisms.
4. Analyze project bundling phases to accelerate project delivery, decrease costs, and enhance efficiency of climate resilience initiatives.

# Training staff

- **Instructors**

- **Rachel Jacobson** (American Society of Adaptation Professionals)
- **Jonathan Lee** and **Ida Sami** (Climate Resilience Consulting)

- **Expert Presenter**

- **Andrew Eil**, Consultant

- **Tech support on Zoom and Slack**

- **Meagan Putnam**, American Society of Adaptation Professionals

# Meeting Norms



Created by CAMB  
from Noun Project

**Be Present.**



Created by Kamin Ginkaew  
from Noun Project

**Take care of yourself.**



Created by Les vieux garçons  
from Noun Project

**Take care  
to respect others.**

# Thank you to our sponsors!

# EGLE

This material is based upon work supported by the Department of Energy and the Michigan Department of Environment, Great Lakes and Energy under Award Number(s) EE0008653.



# Pair Exercise

Reflecting on last week's self-guided session:

“Prioritizing Equity in Climate Resilience Investments”

1) What resonated most with you in the content you explored?

2) What surprised or challenged you about the content you explored?

3) What's a community engagement strategy you're interested in using?

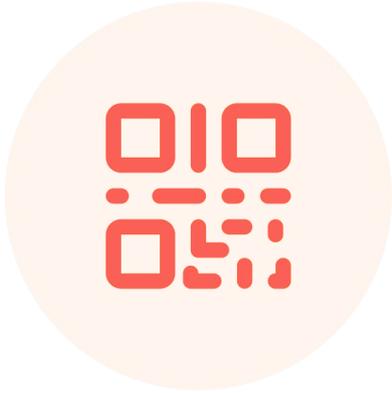
4) What are two ways traditional CBAs hurt Black people, Indigenous peoples, people of color, and people with low/moderate incomes?

# Introduction to Blended Finance and Project Bundling

Andrew Eil, Consultant

[andrew@andreweilconsultant.com](mailto:andrew@andreweilconsultant.com)

slido



**Join at [slido.com](https://slido.com)  
#6427563**

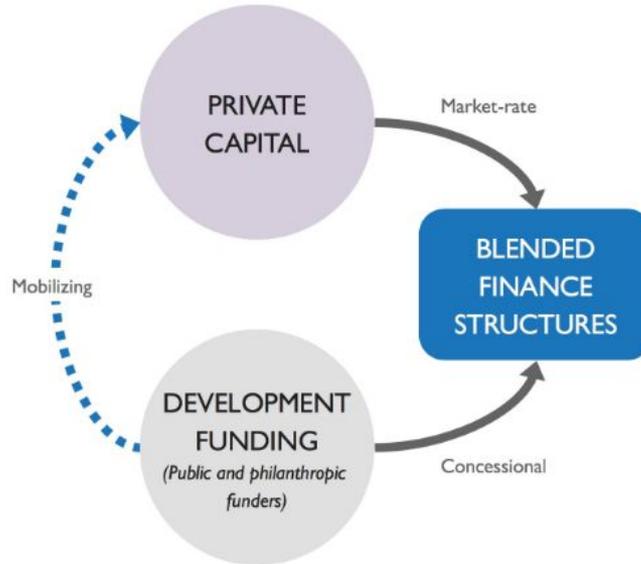
① Start presenting to display the joining instructions on this slide.

# Training Agenda

1. Blended Finance: The Theory
  - a. What is Blended Finance?
  - b. Why do we use Blended Finance?
  - c. Typologies of Blended Finance
  - d. Benefits and drawbacks of different approaches
  
2. Blended Finance: The Practice
  - a. Case studies in the resilience context
  - b. Grant funding and Technical Assistance models
  - c. Green Bank and Guarantee/Insurance models
  - d. Public-Private Partnership model
  - e. Subsidy model
  - f. Conclusions and reflections

## Definition

“ Blended finance is the use of catalytic capital from public or philanthropic sources to increase private sector investment in sustainable development.



“Blended finance is a structuring approach. Blended finance is not an investment approach, instrument, or end solution.”

# What is Blended Finance?

Source: Convergence. “Blended Finance.” Accessed August 2022.  
<https://www.convergence.finance/blended-finance>

# What is Blended Finance?

## Characteristics

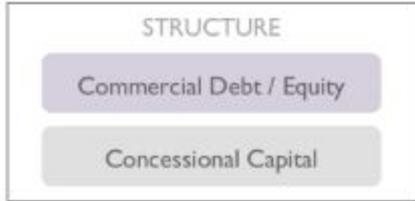
---

Blended finance transactions should have three signature characteristics:

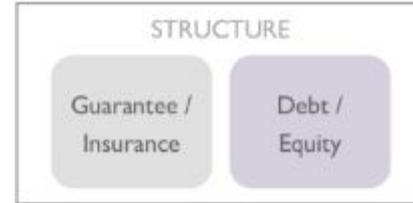
1. **The transaction contributes towards achieving the SDGs.** However, not every participant needs to have that development objective. Private investors in a blended finance structure may simply be seeking a market-rate financial return.
2. **Overall, the transaction expects to yield a positive financial return.** Different investors in a blended finance structure will have different return expectations, ranging from concessional to market-rate.
3. **The public and/or philanthropic parties are catalytic.** The participation from these parties improves the risk/return profile of the transaction in order to attract participation from the private sector.

Source: Convergence. "Blended Finance." Accessed August 2022. <https://www.convergence.finance/blended-finance>

# Blended Finance Archetypes (1 of 2)

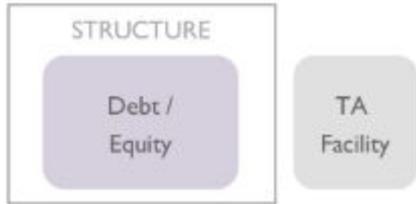


Public or philanthropic investors provide funds on below-market terms within the capital structure to lower the overall cost of capital or to provide an additional layer of protection to private investors (referred to as **concessional capital** in this primer).

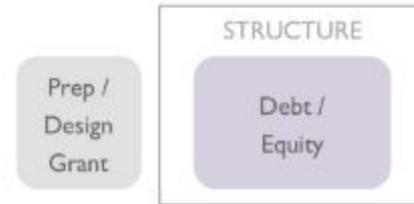


Public or philanthropic investors provide credit enhancement through guarantees or insurance on below-market terms (referred to as **guarantee / risk insurance** in this primer).

# Blended Finance Archetypes (2 of 2)



Transaction is associated with a grant-funded technical assistance facility that can be utilized pre- or post-investment to strengthen commercial viability and developmental impact (referred to as **technical assistance funds** in this primer).

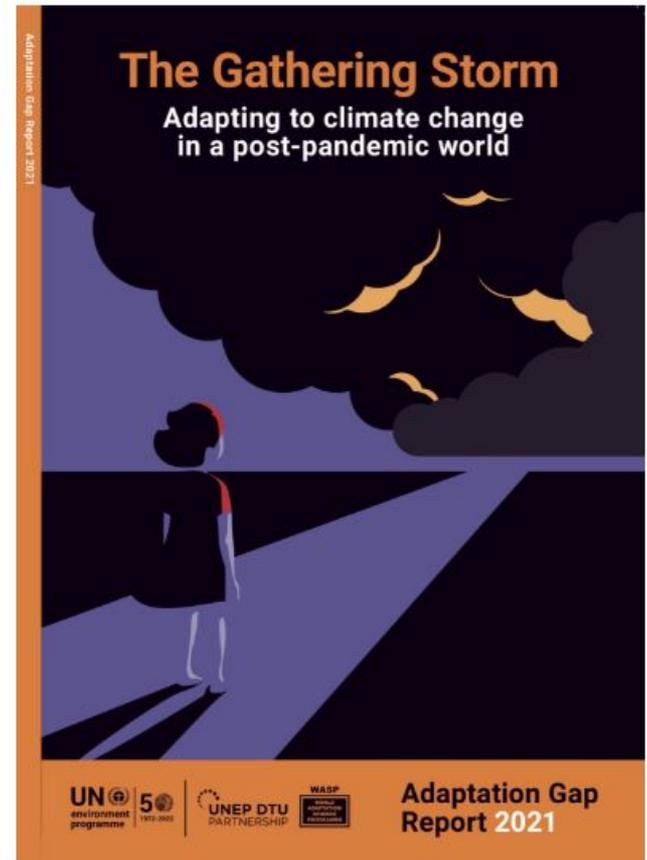


Transaction design or preparation is grant funded (including project preparation or design-stage grants) (referred to as **design-stage grants** in this primer).

# The Adaptation Finance Gap

“[T]he **estimated annual adaptation costs** in the literature are now also generally in the upper range of the 2016 estimate of the Adaptation Gap Report of **US\$140–300 billion by 2030 and US\$280–500 billion by 2050.**

“However, **due to the barriers to private finance** (including around information, positive externalities and low revenues) and the public interventions or finance needed to overcome these, the **rate of uptake and the scaling up of these new instruments remains slow.** Furthermore, **private investment** will gravitate to opportunities where revenues are highest and risks are lowest. It **is unlikely to target the most vulnerable** in least developed countries **or non-market sectors.**”

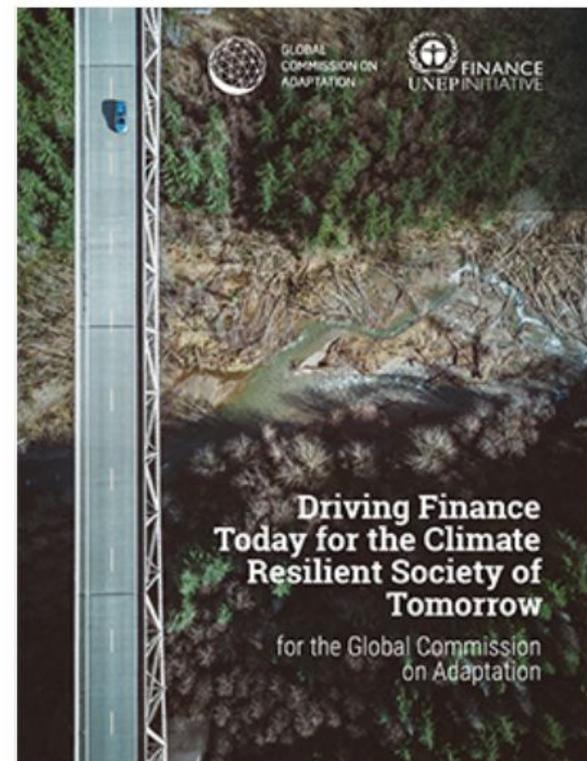


Source: UNEP, 2021. “The Gathering Storm: Adapting to Climate Change in a Post-Pandemic World. Adaptation Gap Report 2021.” <https://www.unep.org/resources/adaptation-gap-report-2021>.

# Climate Resilience: Barriers to Finance

**Figure 8:** Barriers to Scaling up Financing for Adaptation and Resilience, Separated into Categories.

Barrier Categories	Barriers
Inadequate Support for Action on Adaptation/ Resilient Investment	1 Insufficient public financial support
	2 Insufficient incentives for private finance to act
	3 Moral hazard surrounding physical climate risks
Policy and Practice in the Financial Industry	4 Weak legal/regulatory frameworks and guidance
	5 Lack of meaningful disclosure of climate risks
	6 Absence of harmonized and robust metrics and standards
Market Barriers	7 Perceived lack of profitable investments
	8 Perceived low commercial readiness of adaptation and resilient solutions
Nascent Application of Climate Risk Management Practices	9 Weak management of physical climate risks
	10 Insufficient availability and adoption of climate risks data and tools
Low Capacity for Climate Risk Management	11 Low capacity within Financial System Governance Bodies
	12 Low capacity within financial actors



Source: Climate Finance Advisors, 2019. From UNEP FI, 2019. "Driving Finance Today for the Climate Resilient Society of Tomorrow for the Global Commission on Adaptation." [https://climatefinanceadvisors.com/wp-content/uploads/2019/07/GCA-Adaptation-Finance-background-paper\\_FINAL-7-17-19.pdf](https://climatefinanceadvisors.com/wp-content/uploads/2019/07/GCA-Adaptation-Finance-background-paper_FINAL-7-17-19.pdf).

# How and For What Purpose Do We Use Blended Finance?

<b>Model</b>	<b>Purpose</b>
<b>Grant funding model</b>	Provide initial capital prior to commercialization
<b>Technical Assistance model</b>	Provide knowledge and expertise necessary for successful commercialization
<b>Green Bank and Guarantee/Insurance models</b>	Access to affordable capital; project bundling and warehousing; risk capital for innovative tech and biz models; guarantees and insurance to de-risk investments
<b>Public-Private Partnership model</b>	Gov't funding/contracts/concessions relying on the private sector for implementation capacity, expertise, investment capital, access to markets, etc.
<b>Subsidy model</b>	Ongoing financial support from the gov't to attract investments that deliver social & environmental benefits

# Types of Capital: Typical Purposes and Uses

Funding Type/ Characteristic	Public Funding	Philanthropy	Impact Capital	Private Capital
<b>Core Objectives</b>	Social and environmental	Social and environmental	Social/environmental; return on capital	Return on capital
<b>Examples</b>	Federal grants, local tax authorities, public utilities, other public service providers (e.g. public transit agencies), development authorities/CoCs	Foundations, community organizations, community trusts	Development banks, green banks, CDFIs, impact investment funds, revolving loan funds	Banks, investment funds, property and infrastructure developers, concessionaires
<b>Grants</b>	+	+		
<b>Debt (loans and bonds)</b>	U.S. DOE Loan Programs Office		+	+
<b>Equity</b>			+	+
<b>Guarantees and insurance</b>			+	+
<b>Human capital and knowhow</b>	(+)	+	(+)	(+)

# Types of Capital: Typical Purposes and Uses

<b>Funding Type/ Characteristic</b>	<b>Public Funding</b>	<b>Philanthropy</b>	<b>Impact Capital</b>	<b>Private Capital</b>
<b>Patient capital (return/exit delayed many years)</b>	+	+	+	
<b>Able to bear high risk of loss</b>	+	+	+	
<b>Nimble and flexible</b>		+	+	(+)
<b>Able to scale</b>				+
<b>Sustainable source of revenue long term</b>	(+)			+

# Blended Finance Implementation Models

<b>Model</b>	<b>Purpose</b>
<b>Grant funding model</b>	Provide initial capital prior to commercialization
<b>Technical Assistance model</b>	Provide knowledge and expertise necessary for successful commercialization
<b>Green Bank and Guarantee/Insurance models</b>	Access to affordable capital; project bundling and warehousing; risk capital for innovative tech and biz models; guarantees and insurance to de-risk investments
<b>Public-Private Partnership model</b>	Gov't funding/contracts/concessions relying on the private sector for implementation capacity, expertise, investment capital, access to markets, etc.
<b>Subsidy model</b>	Ongoing financial support from the gov't to attract investments that deliver social & environmental benefits

# Adaptation & Resilience Blended Finance: Case Studies

Model	Case Study (-ies)
Grant funding model	Massachusetts MVP program
Technical Assistance model	Rhode Island Infrastructure Bank Municipal Resilience Program
Green Bank model (concessional debt/equity investment) and Guarantee/Insurance model	U.S. EPA Clean Water State Revolving Funds NY Green Bank energy efficiency project warehousing DC Water Environmental Impact Bond Pilot Program for Climate Resilience: Agricultural Risk Transfer Project in Bolivia
Public-Private Partnership model	Hoboken, NJ Resiliency Park Scheveningen, Netherlands Boulevard coastal resiliency redevelopment project
Subsidy model	California AB 32: Carbon pricing revenues for communities

# Grant Model: Massachusetts MVP



Mass.gov

## Municipal Vulnerability Preparedness (MVP) program

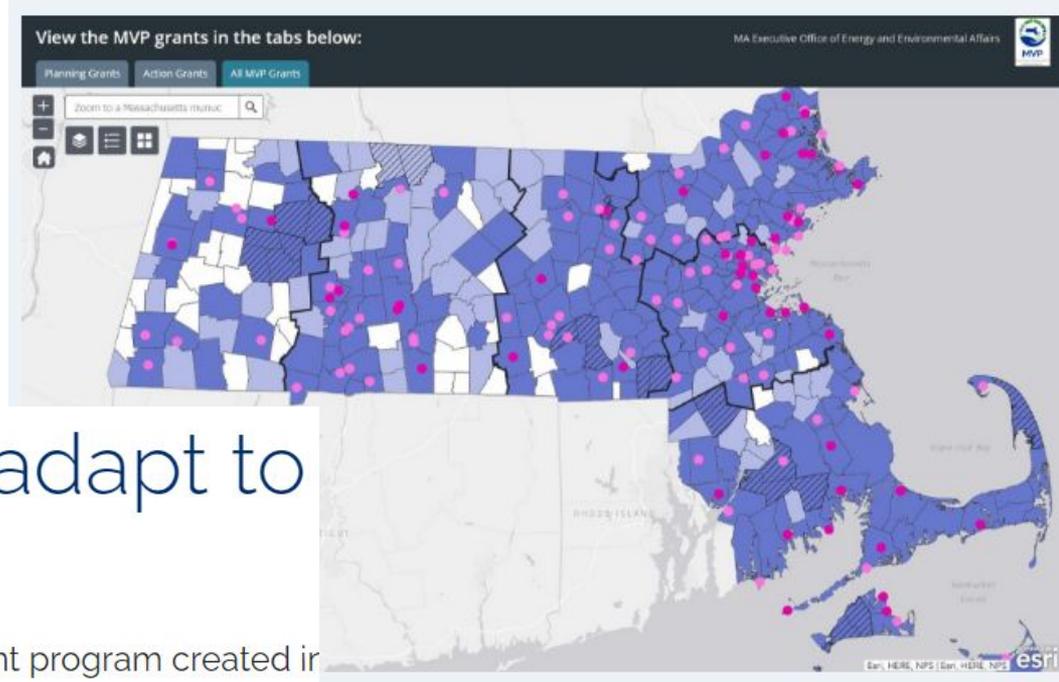
The Municipal Vulnerability Preparedness grant program (MVP) provides support for cities and towns in Massachusetts to begin the process of planning for climate change resiliency and implementing priority projects. The state awards communities with funding to complete vulnerability assessments and develop action-oriented resiliency plans. Communities who complete the MVP program become certified as an MVP community and are eligible for MVP Action Grant funding and other opportunities.

Source: Mass.gov website. "Municipal Vulnerability Preparedness (MVP) program. Accessed August 2022. <https://www.mass.gov/municipal-vulnerability-preparedness-mvp-program>.

# Grant Model: Massachusetts MVP

## Improve resilience & adapt to climate change

The Municipal Vulnerability Preparedness (MVP) grant program created in 2017 as part of Governor Baker's [Executive Order 569](#) provides support for cities and towns in Massachusetts to identify climate hazards, assess vulnerabilities, and develop action plans to improve resilience to climate change. Communities that complete the MVP Planning Grant process become designated as an MVP Community and are eligible for MVP Action Grant funding to implement the priority actions identified through the planning process.



# TA & Grant Model: Rhode Island Infrastructure Bank

## Municipal Resilience Program

---

### The MRP seeks to accomplish:

- Shared understanding of hazards and vulnerabilities
- Prioritization of resilience projects

### The MRP has 3 key elements:

1. TNC Community Resilience Building **Workshops**
2. RIIB MRP **Action Grants**
3. MRP **Project Pipeline**

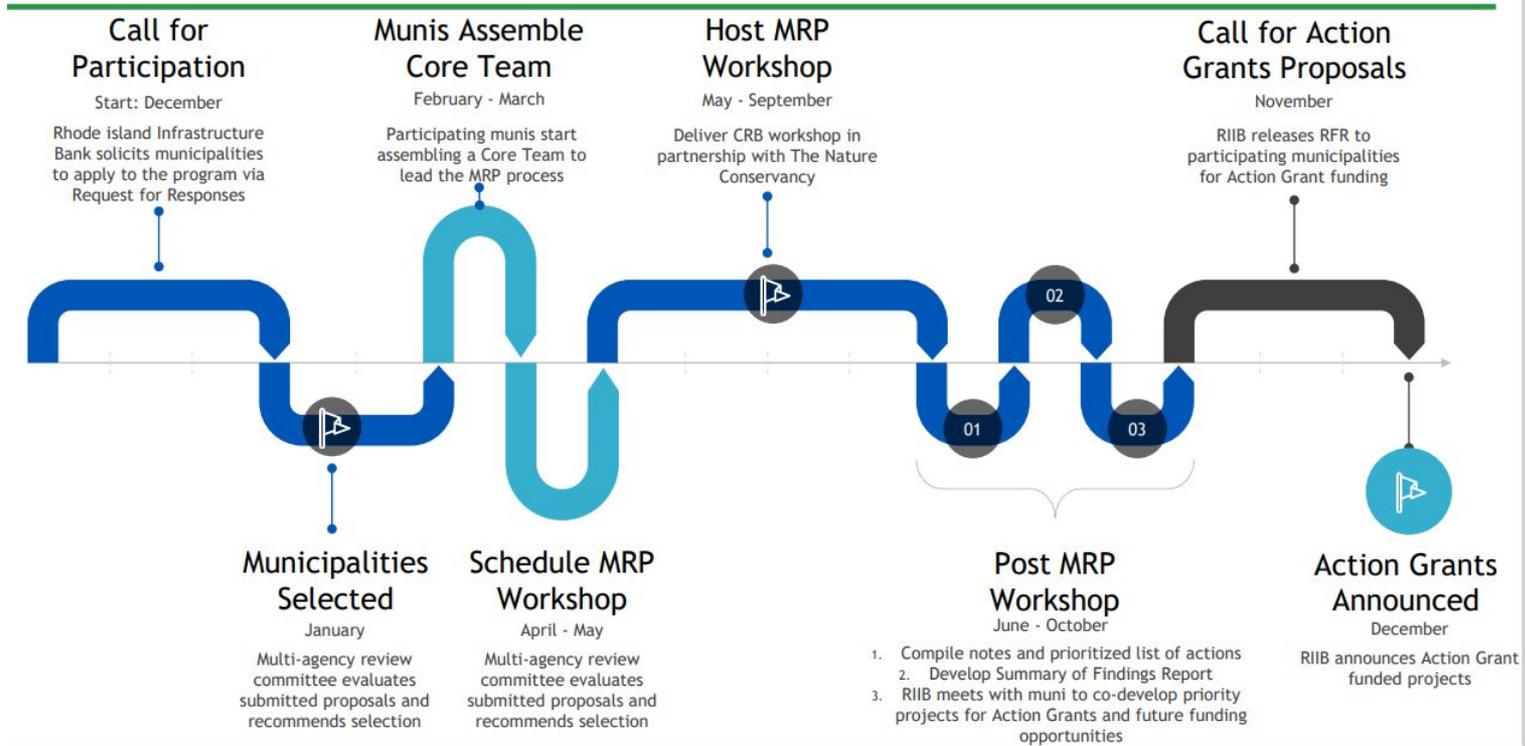


Source: Jeff Diehl & Shaun O’Roarke. “Rhode Island Infrastructure Bank Funding and Financing Climate Resilience.” Environmental Business Council of New England, March 2022.

<https://ebcne.org/wp-content/uploads/2021/03/Presentations-Rhode-Island-Webinar-Environmental-and-Climate-Leadership.pdf>.

# TA & Grant Model: Rhode Island Infrastructure Bank

## Municipal Resilience Program



Source: Jeff Diehl & Shaun O’Roarke. “Rhode Island Infrastructure Bank Funding and Financing Climate Resilience.” Environmental Business Council of New England, March 2022.

<https://ebcne.org/wp-content/uploads/2021/03/Presentations-Rhode-Island-Webinar-Environmental-and-Climate-Leadership.pdf>

# TA & Grant Model: Rhode Island Infrastructure Bank

## Municipal Resilience Program Summary

### 2019 Round:

- 5 municipalities
- 52 Projects totaling ~\$14mm in need

### 2020 Round:

- 8 municipalities
- 149 Projects totaling ~\$70mm in need

### 2021 Round:

- 6 municipalities

### Projects Identified:

- To date, the MRP workshops have identified **201 climate resilience projects** across 13 municipalities
- Of these 201 projects, **144 are actionable**



Source: Jeff Diehl & Shaun O'Roarke. "Rhode Island Infrastructure Bank Funding and Financing Climate Resilience." Environmental Business Council of New England, March 2022.

<https://ebcne.org/wp-content/uploads/2021/03/Presentations-Rhode-Island-Webinar-Environmental-and-Climate-Leadership.pdf>

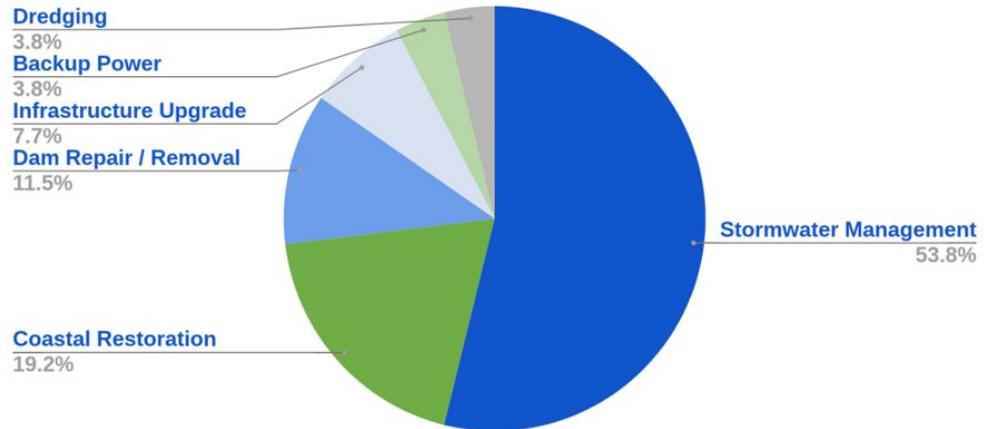
# TA & Grant Model: Rhode Island Infrastructure Bank

## MRP Projects Funded

### Projects Implemented:

- RIIB has already committed **\$2.5mm in action grant funding to 24 projects** in 2019 and 2020
- The MRP has further **catalyzed over \$6mm in funding from outside of RIIB** to support implementation of 8 MRP identified projects
- The recent Beach, Clean Water & Green Economy Bond allocated **\$7mm to MRP identified resilience projects**

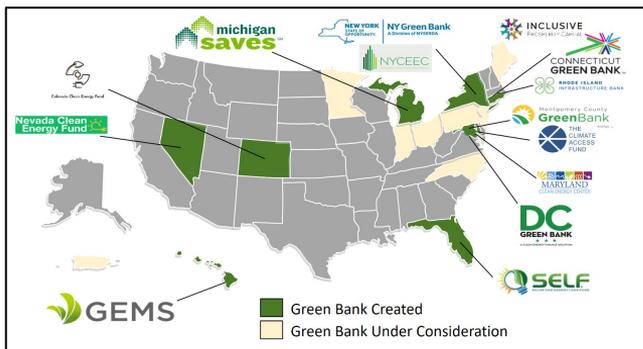
### MRP Funded Project Types (*\$2.5mm MRP Action Grants + \$6mm Catalyzed Funding*)



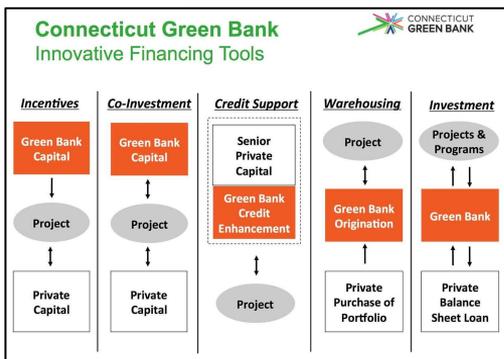
Source: Jeff Diehl & Shaun O’Roarke. “Rhode Island Infrastructure Bank Funding and Financing Climate Resilience.” Environmental Business Council of New England, March 2022.

<https://ebcne.org/wp-content/uploads/2021/03/Presentations-Rhode-Island-Webinar-Environmental-and-Climate-Leadership.pdf>

# Investment Mechanisms: Green Banks & CDFI



- State and county green and infrastructure “banks”
- Financial tools like incentives, co-investment, credit support, warehousing
- Over **950** US Community Development Financial Institutions CDFIs



# Green Bank Model: U.S. EPA Clean Water State Revolving Funds (CWSRFs)

## THE CLEAN WATER STATE REVOLVING FUND

Low-Cost Infrastructure Financing Since 1987

**Totals:**  
**\$153.6 billion** in funding for water quality infrastructure projects  
**44,555 loan agreements** (through FY2021)

**How it works:**  
EPA funds state CWSRFs each year, with **20% state match**.  
All 50 states and Puerto Rico have CWSRFs.

**Apply for financing** through state CWSRFs.

**Who is eligible?**  
(Eligibility varies by state and project type.)

**Communities** **Private entities** **Nonprofit organizations** **Citizen groups**

**Terms:**  
**Up to 30 years** or useful life of project, whichever is less. **May also include additional subsidies** (e.g., principal forgiveness and grants)

**Below-market rates:**  
**1.0% average interest rate** (In 2020 (market rate 2.7%))

**Repayment starts one year after project completion.**

**Types of projects:**

- Publicly owned treatment works
- Nonpoint source projects
- National estuary program projects
- Decentralized wastewater treatment systems
- Stormwater
- Water conservation
- Watershed projects
- Energy conservation
- Water reuse
- Security measures at publicly owned treatment works
- Technical assistance

## Return on investment

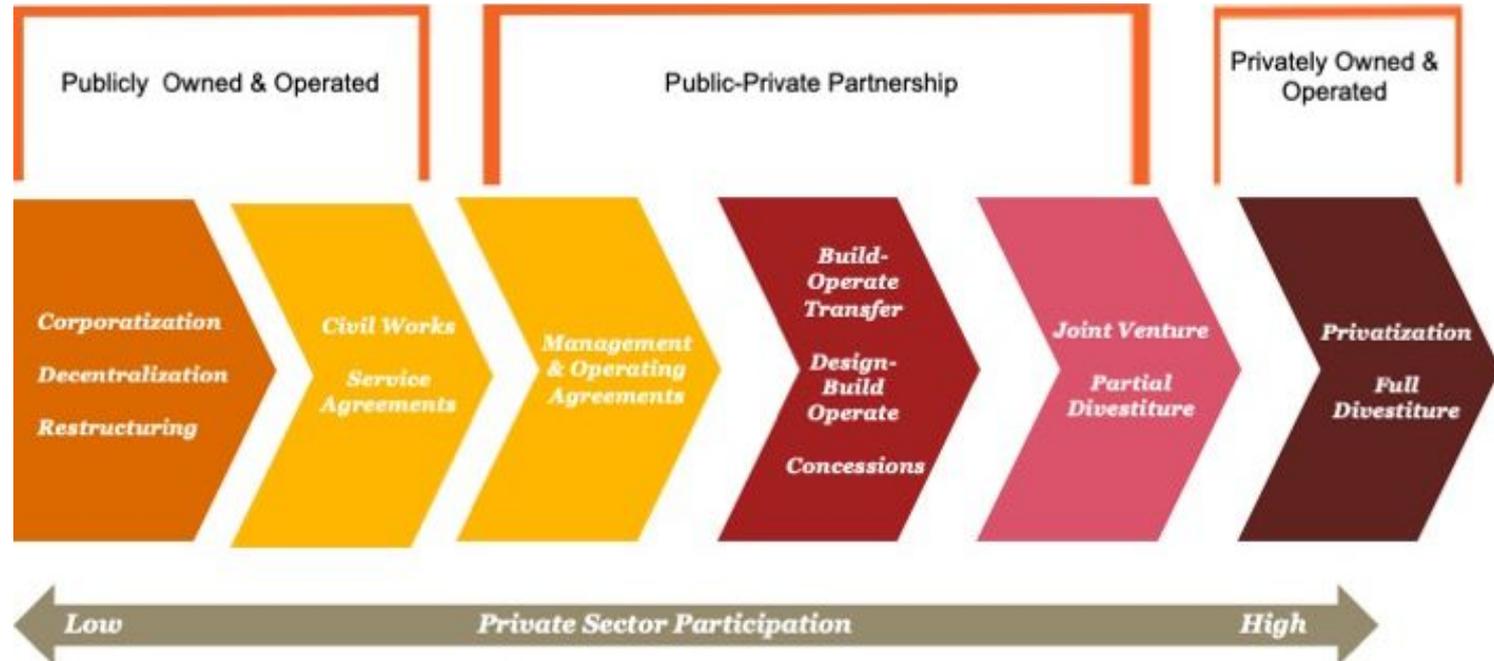
For every **\$1** from federal government **\$3** has gone to help communities.

[www.epa.gov/cwsrf](http://www.epa.gov/cwsrf)

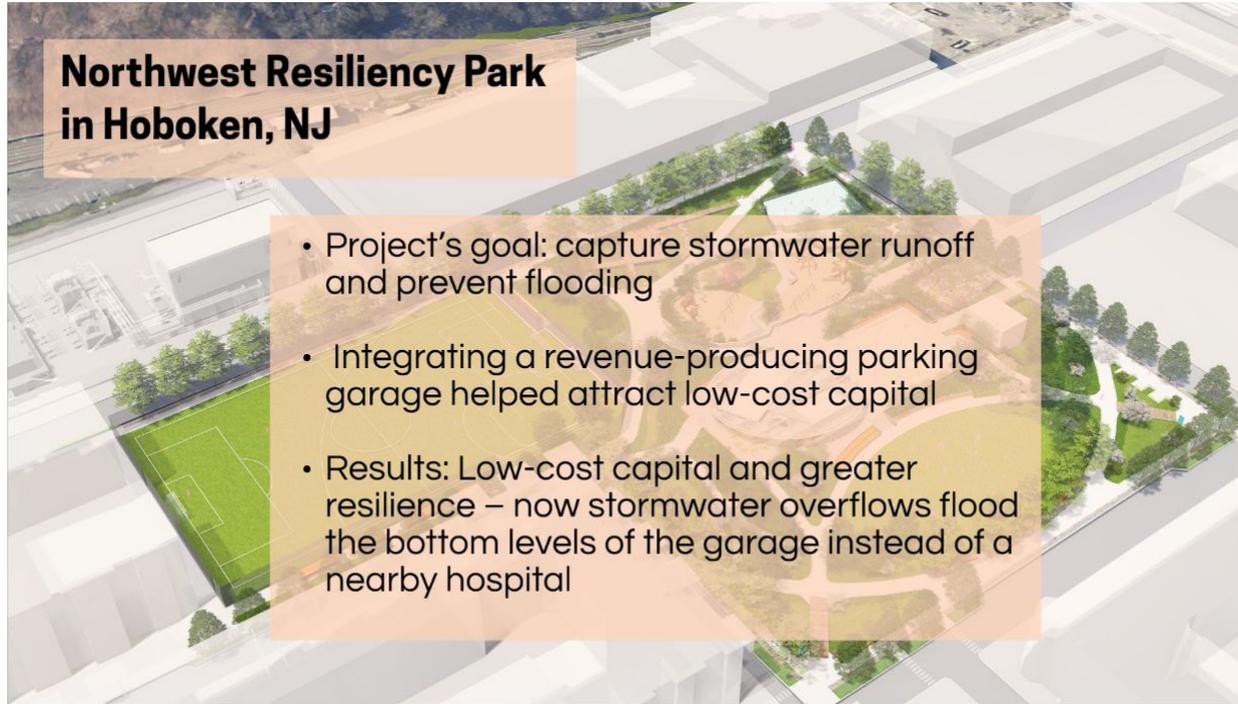
Clean Water State Revolving Fund

Sources: U.S. EPA website. "Clean Water State Revolving Fund infographic."  
<https://www.epa.gov/system/files/documents/2022-04/cwsrf-infographic-2021-2.pdf>.  
Accessed August 2022.

# Infrastructure Public Private Partnership Continuum



# PPP Model: Hoboken, New Jersey Resiliency Park



Source: EU-USCA Climate Risk and Resilience Partnership and CFA. 2021. "Amplifying Resilience Investment: Engaging the Private Sector": webinar. <https://climatefinanceadvisors.com/eu-usca/webinars/> and <https://prezi.com/view/xxiLkaLrQmieKTYa6YIG/>.

# PPP Model: Hoboken, New Jersey Resiliency Park

Hoboken leveraged support from HUD and philanthropically funded design consultants to envision an integrated design that included an above-ground parking garage and underground water retention beneath green space and other park amenities like urban farming and recreation facilities. Tied to the site, the city also is working with North Hudson Sewer Authority to separate their currently combined sewer system. After lengthy negotiations, Hoboken purchased the BASF site in December 2016 for \$30 million with a loan from the New Jersey Environmental Infrastructure Trust and then quick initiated a 2-year design process that includes at least 6 community engagement events and public charettes to inform the

## OUTCOMES

1 As a clean water project funded by NJEIT, three-quarters of the loan is interest-free and the remainder is at market rates. The financing also includes 19% principal forgiveness for green infrastructure.

Source: The Atlas website. "Hoboken's NW Resiliency Park to Solve Community Flooding, Parking and Limited Park Space Challenges."

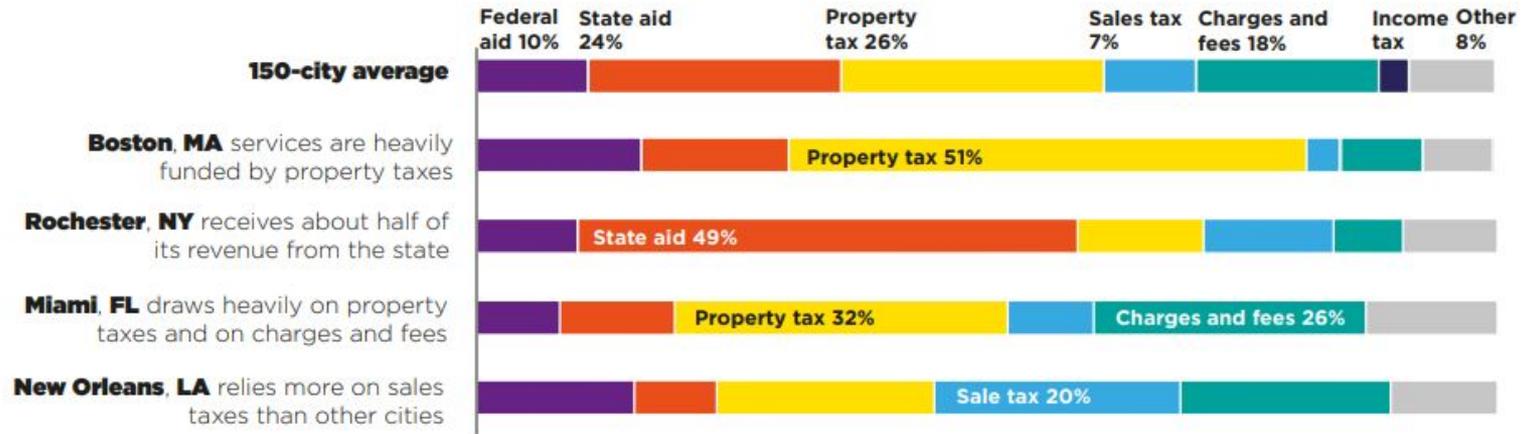
<https://the-atlas.com/projects/northwest-resiliency-park-to-solve-community-flooding>. Accessed August 2022.

2 Parking fees from the parking garage integrated into the design will help pay back bonds for the project.

3 Green infrastructure and underground detention will be able to absorb a million gallons of water that would otherwise flood the streets and basements of Hoboken's low-lying western region.

# Local Revenues and Public Financing Options

**Figure 3. Average and select city revenue bases in the US<sup>52</sup>**



Source: Badger, E. and Bui, Q. (2020). *The Recession Is About to Slam Cities. Not Just the Blue-State Ones* [online]. *The New York Times*, 17 August 2020.

Cited in: C40 Cities Climate Leadership Group and Climate Finance Advisors, 2020. "Financing the Green and Just Recovery." <https://climatefinanceadvisors.com/wp-content/uploads/2020/10/Financing-the-Green-and-Just-recovery.pdf>.

# Considering Public Financing for Blended Mechanisms

Budgeting considerations	
Revenue potential	Does the programme or investment create a source of revenue to support the intervention or co-fund other objectives, for example, congestion charges dedicated to expanding mass transit services
Revenue foregone (for example, incentives)	Incentivise private opex or capex spending to support public objectives/goods, for instance, a reduction in taxes or fees, or additional floor-area allowances or expedited approvals
Operational budget reallocation	Can reallocating expenditure from an existing programme fund the policy? For example, does it transfer from a business-as-usual (non-green) activity to the new activity that reflects changes in city programmes or priorities?
Capital budget reallocation	Can reallocating expenditure from an existing programme fund the policy? For example, does it transfer from a business-as-usual (non-green) activity to the new activity that reflects changes in city programmes or priorities?
Operating budget need (high/medium/low)	What is the scale of the programme expenditure within the overall municipal budget (suggesting lower operating cost items may present 'quick wins' with a shorter implementation timeframe)?
Investment capital need (high/medium/low)	What is the 'ticket size' of the investment (suggesting lower capital investment items may present 'quick wins' with a shorter implementation timeframe)?

Source: C40 Cities Climate Leadership Group and Climate Finance Advisors, 2020. "Financing the Green and Just Recovery."

<https://climatefinanceadvisors.com/wp-content/uploads/2020/10/Financing-the-Green-and-Just-recovery.pdf>.

## Conclusions:

- **Focus on raising & leveraging revenue**
- **Long-term planning centering sustainability & equity**
- **Stakeholder engagement & partnership**
- **Institutional and human capacity building**
- **Build project pipeline**
- **Develop key indicators & metrics for project selection and evaluation**

Even before the pandemic, the scale of the financing needed to address urban growth, climate and equity issues was substantial. Many of these challenges have grown more acute. However, the evidence strongly suggests that investment capital is readily available and deployable to support city MTF Agenda actions if municipal projects and investment climates are conducive.

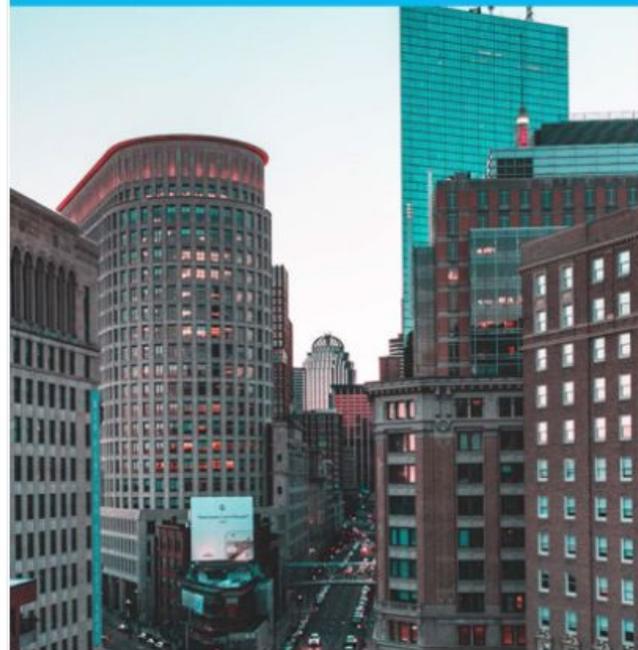
It is critical, therefore, that cities concentrate on raising revenue and attracting funding and investment capital. A disciplined focus on long-term planning, capacity-building, revenue generation and collaboration with multiple levels of government and the private sector will enable cities to take advantage of the full range of financing opportunities available.

Cities, however, cannot face or meet this challenge alone. National governments, public finance institutions and private capital must step up to meet the financing need and support cities in building the capacity and project pipeline necessary to effect the green and just recovery.

## Financing the Green and Just recovery

C40  
CITIES

December 2020



Source: C40 Cities Climate Leadership Group and Climate Finance Advisors, 2020. "Financing the Green and Just Recovery."  
<https://climatefinanceadvisors.com/wp-content/uploads/2020/10/Financing-the-Green-and-Just-recovery.pdf>

# New Federal Resilience Funding Sources

- **New and expanded FEMA programs (\$5B)**
  - BRIC
  - Hazard Mitigation Grant Program
  - Flood Mitigation Assistance
- **American Rescue Plan Act, March 2021**
  - \$350B funding for state, local, & tribal gov't, including infrastructure
- **Bipartisan Infrastructure Framework, October 2021**
  - \$50B to protect against droughts, heat, floods and wildfires plus weatherization funding
- **Inflation Reduction Act (pending passage)**
  - \$360B for clean energy programs
    - GGRF/Clean Energy Accelerator (Green Bank)
    - Electrification and Clean Energy infrastructure - resilience benefits
    - Residential energy efficiency
  - \$60+B billion for cities disproportionately affected by climate change & climate resiliency funding for Native American communities
    - Climate justice programs
    - Ports cleanup
    - Clean energy earmarked for underserved communities

SE



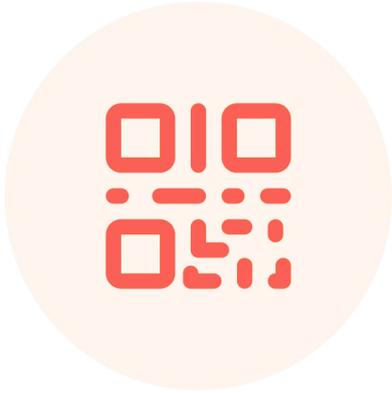
BRIEFING ROOM

## FACT SHEET: Biden Administration Announces Nearly \$5 Billion in Resilience Funding to Help Communities Prepare for Extreme Weather and Climate- Related Disasters

AUGUST 09, 2021 • STATEMENTS AND RELEASES

# Break

slido



**Join at [slido.com](https://slido.com)  
#6427563**

① Start presenting to display the joining instructions on this slide.

# Q&A

# Small Group Activity



Practice identifying project phases that are difficult to fund or finance and brainstorm funding and finance mechanisms appropriate for those phases.

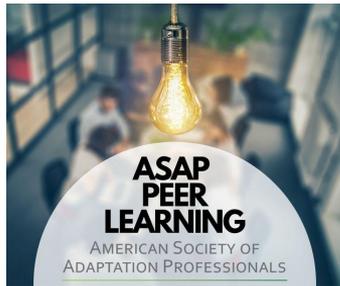
1. Group Introductions
2. Identify a Case Study
3. Brainstorm appropriate funding and finance mechanisms

# Final Reflection & Evaluation

What will you do differently  
because of this training?

What do you want to learn  
next?

# Continue Learning with ASAP!



## Monthly Peer Learning

- Professional Opportunities in Adaptation
- Justice, Equity, Diversity and Inclusion
- Convening Climate Collaborators
- Funding and Finance
- Climate Migration and Managed Retreat
- Community Adaptation Learning Exchange
- Policy Practice



[adaptationprofessionals.org/  
join-us](https://adaptationprofessionals.org/join-us)

## Principles of Adaptation Training Aug 24

Featured Speakers: Melissa Deas and Susan Ekoh



## Principles of Quality

Climate Change Adaptation

## Next Co-Creation Webinar - September 21

Multilateral Adaptation Action: The Global Stocktake



## Co-Creation Webinar Series

*The space where innovation and climate resilience meet.*

# Thank you to our sponsors!

# EGLE

This material is based upon work supported by the Department of Energy and the Michigan Department of Environment, Great Lakes and Energy under Award Number(s) EE0008653.



# Supplementary Blended Finance Slides

Blended Finance Case  
Studies and Approaches to  
Public and Private Finance  
for States & Cities

# Green Bank Model: NY Green Bank EE Warehousing



**NY Green Bank**  
A Division of NYSERDA

NY Green Bank's commitment of more than \$250 million during 2016 is expected to stimulate additional private sector clean energy investment in New York of more than \$677 million, resulting in a total investment of \$927 million from the year's financings.

Among the transactions closed in 2016 are:

- **Energy efficiency upgrades** that will reduce costs at nine school buildings and one administrative building in Northport, Long Island, saving the district more than \$1 million annually. This approach to energy efficiency equipment lease financing can be replicated at municipalities, universities, schools and healthcare facilities.
- **A commercial solar project on a brownfield site**, the first in a planned ~\$30 million portfolio of commercial and industrial projects supported by NY Green Bank. By standardizing financing for commercial and industrial solar projects, NY Green Bank is making them more “bankable” by private sector standards, which will result in lower costs.
- **Financing for up to 1,300 fuel-cell systems** that will replace lead-acid batteries in forklifts at distribution centers across New York. This financing establishes a greater track record for this business model and technology to ultimately broaden the availability of financing from banks and other capital providers.

Source: NY Green Bank website. <https://greenbank.ny.gov/>; “In the News,” January 18, 2017.  
<https://greenbank.ny.gov/News-and-Media/In-The-News/2017-01-18-NY-Green-Bank-Announces-Closing-of-13-Transactions-in-2016>.

# Green Bank Model: DC Water Envir. Impact Bond

**Goldman  
Sachs**



<b>Par Amount</b>	\$25,000,000
<b>Use of Proceeds</b>	Construction of green infrastructure for Rock Creek Project A (RC-A)
<b>Tax Status</b>	Tax-exempt
<b>Bond Structure</b>	Multimodal variable rate bonds, initially issued in a term mode at a fixed rate through the mandatory tender date

## ❖ Project Overview

- The proceeds from the EIB will provide the upfront capital needed to construct DC Water’s inaugural green infrastructure project in the Rock Creek sewershed (Rock Creek Project A or RC-A).
- RC-A is part of the DC Clean Rivers Project, a \$2.6 billion long-term program to control CSOs that pollute the Anacostia River, Potomac River and Rock Creek.
- The green infrastructure practices will be installed primarily in the public right-of-way and include permeable pavement and bioretention facilities (e.g., rain gardens).

Sources: DC Water. “DC Water’s pioneering Environmental Impact Bond a success.” May 27, 2021.

<https://dcwater.com/whats-going-on/news/dc-water%E2%80%99s-pioneering-environmental-impact-bond-success>; Goldman Sachs.

“FACT SHEET: DC Water Environmental Impact Bond.”

<https://www.goldmansachs.com/media-relations/press-releases/current/dc-water-environmental-impact-bond-fact-sheet.pdf>.

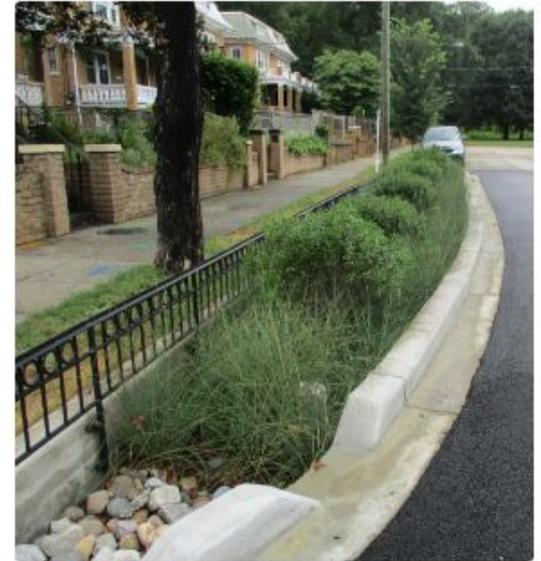
# Green Bank Model: DC Water Envir. Impact Bond

DC Water achieved the objectives established at the outset of the financing:

- Ensure responsible stewardship of ratepayer funds by transferring a portion of performance risk associated with technologies that had never been implemented on a large scale in the District
- Enhance future decision-making about how much and which types of green infrastructure to build
- Create a model funding mechanism that other municipalities can leverage to advance the use of green infrastructure to address stormwater management in their communities
- Establish a green jobs initiative targeting local workforce development and sustainable job creation, including training and certification opportunities for District residents
- Improve transparency to local ratepayers by formally predicting, measuring, and publicly reporting the environmental impact of the green infrastructure

Each of these objectives was achieved. Additionally, post-construction monitoring found the green infrastructure reduced stormwater runoff by nearly 20 percent from previous levels, achieving the performance goals.

## DC Water's pioneering Environmental Impact Bond a success



May 27, 2021

Sources: DC Water. "DC Water's pioneering Environmental Impact Bond a success." May 27, 2021.

<https://dcwater.com/whats-going-on/news/dc-water%E2%80%99s-pioneering-environmental-impact-bond-success>; Goldman Sachs.

"FACT SHEET: DC Water Environmental Impact Bond." [2016.]

<https://www.goldmansachs.com/media-relations/press-releases/current/dc-water-environmental-impact-bond-fact-sheet.pdf>.

# Loan Guarantee/Insurance Model: PPCR Bolivia Project

1. <b>Country/Region:</b>	Bolivia	2. <b>CIF Project ID#:</b>	BO-L1181
3. <b>Source of Funding:</b>	<input type="checkbox"/> FIP	<input checked="" type="checkbox"/> PPCR	<input type="checkbox"/> SREP
4. <b>Project/Program Title:</b>	Financial Management of Climate Change Risk through Agriculture Insurance		
5. <b>Type of CIF Investment:</b>	<input checked="" type="checkbox"/> Public	<input type="checkbox"/> Private	<input type="checkbox"/> Mixed
6. <b>Funding Request in million USD equivalent:</b>	Grant: US\$	Non-Grant: US\$10 million	
7. <b>Implementing MDB(s):</b>	10. <b>Project/Program Description</b> (including objectives and expected outcomes):		
8. <b>National Implementing Agency:</b>	<p>The objective of the project is to contribute to the long-term financial sustainability of the “Pachamama” Agriculture Insurance Program (PAIP) through the transfer of part of the financial risk to the insurance market and the surplus to a Catastrophic Stop-Loss Fund (SLF). The specific objectives of the project are: (i) to maintain coverage against extreme climate risks; (ii) to stabilize and improve the efficiency of the Government's contributions to the loss coverage; and (iii) to enable and reduce the cost of transferring risk from the PAIP to the insurance sector.</p> <p>The loan will finance the creation of the SLF in order to lessen the impact of extreme losses during catastrophic events on the public sector and the insurance market in years of extreme weather that affect agriculture producers. For more information on the implementation of the program and the SFL, see section I.B of the attached Proposal for Operation Development</p>		

Sources: Climate Investment Funds website.

“Financial Risk Management for Climate Resilience in the Agriculture Sector.”

<https://www.climateinvestmentfunds.org/projects/financial-risk-management-climate-resilience-agriculture-sector>; project document cover page: <https://pubdocs.worldbank.org/en/668801531529083903/1976-PPCRBO601A-Bolivia-Cover-Page.pdf>. Accessed August 2022.

# PPP Model: Netherlands Coastal Resilience

## The Scheveningen Boulevard

- Beach community initially opposed a proposed high coastal seawall to protect town
- Redesigned project incorporated community feedback and a smaller seawall combined with an extended beach to absorb wave energy, along with an attractive promenade
- This approach attracted local and national investment
- The project boosted the local economy while protecting the community from the effects of climate change (ambition instead of issue driven)

Source: EU-USCA Climate Risk and Resilience Partnership and CFA. 2021. "Amplifying Resilience Investment: Engaging the Private Sector": webinar. <https://climatefinanceadvisors.com/eu-usca/webinars/> and <https://prezi.com/view/xxiLkaLrOmieKTYa6YIG/>.

# PPP Model: Netherlands Coastal Resilience

## Most Dutch infrastructure projects are now public-private partnerships

- Government does not use PPPs to attract funding
- Rather, PPPs
  - Enable shared climate ambitions
  - Build trust
  - Encourage innovation & sustainability
- The Netherlands has a consensus-focused culture
  - Infrastructure projects integrate ambitions from government agencies, the private sector and the community

Source: EU-USCA Climate Risk and Resilience Partnership and CFA. 2021. "Amplifying Resilience Investment: Engaging the Private Sector": webinar. <https://climatefinanceadvisors.com/eu-usca/webinars/> and <https://prezi.com/view/xxiLkaLrQmieKTYa6YIG/>.

# Subsidy Model: California Cap & Trade Funding

Across California, 73 California Climate Investments programs administered by 22 state agencies are continuing to direct billions of dollars into the state's transition to a low-carbon and more equitable future. The *2022 Annual Report to the Legislature on California Climate Investments Using Cap and Trade Auction Proceeds* shows that from December 2020 to November 2021, California Climate Investments implemented \$2.1 billion, bringing the cumulative total to nearly \$10.5 billion.

These investments are delivering major economic, environmental, and public health benefits for Californians, including meaningful benefits to disadvantaged communities and low-income communities and households, collectively referred to as priority populations.

Sources: California Air Resources Board website. "2022 Annual Report Fact Sheet." [https://ww2.arb.ca.gov/sites/default/files/auction-proceeds/arsupportdata/ccli\\_2022ar\\_ccifactsheet.pdf](https://ww2.arb.ca.gov/sites/default/files/auction-proceeds/arsupportdata/ccli_2022ar_ccifactsheet.pdf); California Climate Investments website. "All Programs." <https://www.caclimateinvestments.ca.gov/all-programs>.



Coastal Resilience Planning



Multi-Family Energy Efficiency and Renewables



Healthy Soils Program

# California Cap and Trade Scheme: Use of Revenues



## Cumulative Project Outcomes



50% of funding benefiting priority populations (\$5.2 billion)



800+ transit agency projects funded, adding or expanding transit service



563,812 individual projects implemented



419,000+ rebates issued for zero-emission and plug-in hybrid vehicles



8,939 affordable housing units under contract



721,000 acres of land preservation or restoration



170,000 urban trees



70,000 tons of criteria air pollutant reductions

November 2021

# Public Revenue Approaches

Flow of capital	Financing mechanism	Source of finance	Advantages	Disadvantages
On-budget (inflows into city coffers)	<b>Intergovernmental transfers: annual budgetary allocations</b>	Provincial and national government	<ul style="list-style-type: none"> <li>Familiar mechanisms for delivery</li> <li>Capitalise on existing political relationships</li> <li>One of several channels for stimulus</li> </ul>	<ul style="list-style-type: none"> <li>Often structurally inflexible</li> <li>Controlled by other levels of government</li> <li>May be slowed or reduced by a pandemic</li> </ul>
	<b>Grants: use-specific capex and opex funding</b>	Provincial and national government, donor agencies, foundations	<ul style="list-style-type: none"> <li>Do not financially burden local actors</li> <li>Not subject to financial-market conditions or investor interest</li> <li>One of several channels for stimulus</li> </ul>	<ul style="list-style-type: none"> <li>Limited and sometimes unfamiliar sources</li> <li>Difficult to access</li> <li>Restrictions on use</li> <li>Reporting and management burdens</li> <li>One-off sources lacking longer-term financial sustainability</li> </ul>
	<b>Local own-source revenue: taxes (income, sales and property), tolls, levies and fees, payment for services</b>	Business, consumer, households and property owners subject to taxes, users of paid public services (such as transit, waste disposal, utilities and toll roads)	<ul style="list-style-type: none"> <li>Most readily accessed and controlled sources of capital</li> <li>Many options for targeting to promote social and economic equality</li> <li>Can in some cases be executed quickly by city political bodies</li> </ul>	<ul style="list-style-type: none"> <li>Burdensome to local actors, such as businesses and households, on which taxes and fees are imposed</li> <li>Require developed and transparent public financial management structures</li> <li>Require strong political will and public support</li> <li>May not be politically viable or deliver revenue during a pandemic and subsequent economic crisis</li> </ul>
	<b>Public debt issuance (concessional and commercial): general obligations, green and social bonds</b>	Public and private investors, DFIs (in some cases)	<ul style="list-style-type: none"> <li>Offers some control of size and use</li> <li>May be more affordable in the context of the green recovery response</li> <li>Best channel for accessing DFIs</li> <li>Prevailing interest rates are low</li> <li>Can be targeted at SDG-, green- and climate-oriented investors</li> </ul>	<ul style="list-style-type: none"> <li>Subject to market sentiment</li> <li>Imposes debt burden and interest payments</li> <li>Requires a strong credit rating</li> <li>Requires a legal basis for debt issuance</li> <li>Requires strong financial management capacity</li> <li>Imposes reporting requirements</li> <li>May require political support</li> </ul>

Source: C40 Cities Climate Leadership Group and Climate Finance Advisors, 2020. "Financing the Green and Just Recovery."

<https://climatefinanceadvisors.com/wp-content/uploads/2020/10/Financing-the-Green-and-Just-recovery.pdf>.

# Private Finance Approaches (1/2)

Off-budget (no inflows into city coffers)	<b>Public-private partnerships (PPPs): externally financed procurement of goods and services, public monopoly concessions</b>	Private investors, corporate vendors and service providers	<ul style="list-style-type: none"> <li>• Generally do not burden city budgets</li> <li>• Tap into the domain expertise, management capacity, resources and capital-market access of the private sector</li> <li>• Potential to raise capital quickly</li> <li>• May reduce local reliance on higher government jurisdictions</li> </ul>	<ul style="list-style-type: none"> <li>• Difficult to design and execute</li> <li>• Outsourcing of basic services to external actors may have undesired consequences, especially in the case of service-provider inadequacy or bankruptcy</li> <li>• Subject to market sentiment and interest</li> <li>• May not offer adequate value for cities</li> <li>• May sacrifice long-term revenues for short-term benefits</li> </ul>
	<b>Commercial project finance: debt and equity</b>	Public and private investors, DFIs and MDBs	<ul style="list-style-type: none"> <li>• Does not burden city budget</li> <li>• Taps into the domain expertise, management capacity, resources and capital-market access of the private sector</li> <li>• Does not rely on higher government jurisdictions</li> <li>• Well aligned with economic development initiatives</li> </ul>	<ul style="list-style-type: none"> <li>• Dependent on market interest</li> <li>• May be difficult to align with public policy agenda</li> <li>• Cities may cede control to other decision-makers</li> <li>• May require political capital and face opposition and lobbying by special interests</li> <li>• May prioritise developers' interests over local communities', exacerbating equity concerns</li> </ul>
	<b>Revenue-backed infrastructure bonds (frequently issued by quasi-government corporate entities)</b>	Public and private investors, DFIs and MDBs	<ul style="list-style-type: none"> <li>• Do not burden city budget (as long as they are not backstopped by city governments)</li> <li>• May not rely on higher government jurisdictions</li> <li>• Suitable channel for pairing with stimulus from national governments and green/ infrastructure banks</li> <li>• Potentially large in volume</li> <li>• Prevailing interest rates are low</li> <li>• Green recovery response may make them more affordable and readily accessible from DFIs</li> <li>• Can be targeted at SDG-, green- and climate-oriented investors</li> </ul>	<ul style="list-style-type: none"> <li>• Require eligible and capable institutions to issue and manage the project</li> <li>• Require a strong credit rating</li> <li>• Impose a debt burden</li> <li>• Cities may cede some control to other decision-makers</li> <li>• May be technically difficult to design and implement</li> <li>• Require the imposition of taxes, tolls and/or fees to generate revenue for debt repayment</li> <li>• Typically require political capital and slow, careful planning</li> <li>• May require trade-offs between revenue generation to attract investment and a cost burden for local communities</li> </ul>

Source: C40 Cities Climate Leadership Group and Climate Finance Advisors, 2020. "Financing the Green and Just Recovery." <https://climatefinanceadvisors.com/wp-content/uploads/2020/10/Financing-the-Green-and-Just-recovery.pdf>.

# Private Finance Approaches (2/2)

<p><b>Land value-capture mechanisms (various): concessions (property development) and infrastructure finance</b></p>	<p>Private investors, corporations, tax-payers (NB: overlap with PPPs, project finance and revenue bonds)</p>	<ul style="list-style-type: none"> <li>• Do not burden city budgets (near term or at all)</li> <li>• May not rely on higher government jurisdictions</li> <li>• Well suited to urban redevelopment or densification and economic development initiatives</li> <li>• Means of attracting private capital</li> <li>• Can align with and advance urban planning and transit objectives</li> <li>• Places future tax burdens on businesses and property owners who profit from development improvements (in other words, promotes fairness and social equity)</li> </ul>	<ul style="list-style-type: none"> <li>• Investment and expected revenue may be slow and/or uncertain to materialise; dependent on market interest</li> <li>• May be technically difficult to design and implement</li> <li>• May require political capital and face opposition and lobbying by special interests</li> <li>• May be limited by laws and regulations set by provincial or national government</li> <li>• May create debt burdens and depend on uncertain revenues (instrument-specific)</li> <li>• May prioritise developers' interests over local communities', exacerbate equity concerns</li> </ul>
<p><b>Policy instruments to promote investment: regulations, enabling policies and standards</b></p>	<p>Private investors, corporations, tax-payers, consumers</p>	<ul style="list-style-type: none"> <li>• Do not burden city budget</li> <li>• May not rely on higher government jurisdictions</li> <li>• Not subject to market sentiment</li> <li>• Can stimulate investment without tax burdens</li> <li>• Can be designed to closely align with city policy agendas and priorities</li> </ul>	<ul style="list-style-type: none"> <li>• Resource mobilisation may be slow and/or uncertain to materialise</li> <li>• May be limited by laws and regulations set by provincial or national governments</li> <li>• May be technically difficult to design and implement</li> <li>• May require political capital and face opposition and lobbying by special interests</li> <li>• May impose burdensome regulations on local businesses and households</li> </ul>

Source: C40 Cities Climate Leadership Group and Climate Finance Advisors, 2020. "Financing the Green and Just Recovery." <https://climatefinanceadvisors.com/wp-content/uploads/2020/10/Financing-the-Green-and-Just-recovery.pdf>.