

Adaptation Co-Creation Series

Webinar 2: Innovations in Adaptation Finance

AMERICAN SOCIETY OF
ADAPTATION PROFESSIONALS

ASAP Mission

Connect and support climate change adaptation professionals to advance innovation and excellence in the field of climate change adaptation.



American Society of Adaptation Professionals

▶ ASAP Connects

Bringing members together on critical topics including: Professional education, Climate Migration, Public Policy, and Justice Equity, Diversity & Inclusion

▶ Adaptation Voices

Share member accomplishments, best practices in the adaptation and resilience field, and lift diverse stories of leadership and expertise.

▶ Adaptation Careers

Assisting members to excel in their current jobs through mentorship and access to peer learning; explore new opportunities through weekly jobs and boards

www.adaptationprofessionals.org

American Society of Adaptation Professionals Code of Conduct (2017)

Living Guide on the Principles of Climate Change Adaptation (2018)

Knowledge & Competencies Framework for Adaptation and Resilience Professionals (2019)

American Society of Adaptation Professionals Justice Equity Diversity & Inclusion Statement (2020)

Adaptation Co-Creation Series

June 2020 - June 2021

What to Expect

- ▶ Innovative & Effective Adaptation Practices
- ▶ Diverse project teams
- ▶ Justice and equity throughout

How to Join

- ▶ Participate via Zoom/Facebook Live
- ▶ Recommend a project to feature
- ▶ Sponsor and design an upcoming webinar

Tech Check!



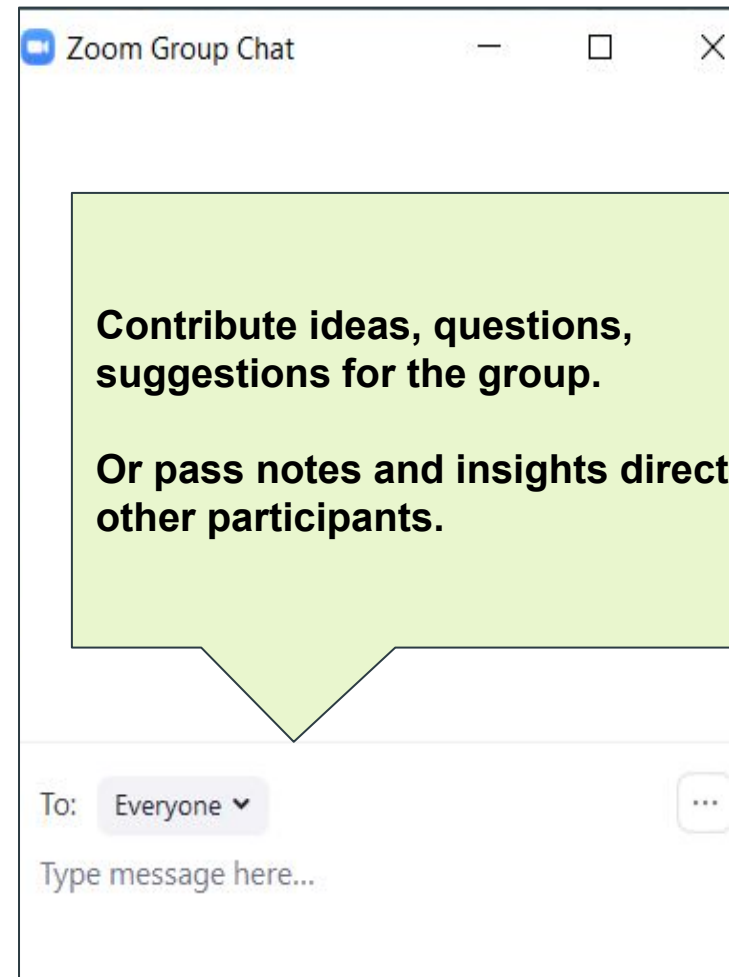
- ▶ Microphones Off



- ▶ Cameras off or on



- ▶ Questions posted in chat



Today's Speakers

Innovative finance for climate adaptation solutions: How public private partnerships, local-state coordination, and performance-based finance are moving our work forward.

- ▶ **Moderator, Emily Wasley**, Senior Project Director with WSP
- ▶ **Joyce Coffee**, Founder & Principal, Climate Resilience Consulting
- ▶ **Shaun O'Rourke**, Chief Resilience Officer, State of Rhode Island
- ▶ **Ben Cohen**, Director of Urban and Coastal Resilience, Quantified Ventures
- ▶ **Shalini Vajjhala**, Founder & CEO, re:focus partners
- ▶ **Beth Gibbons**, Executive Director with ASAP

The State Role in Local Adaptation Funding



Climate
Resilience
Consulting



Innovation Network
for Communities

CLIMATE RESILIENCE CONSULTING — THE SUMMIT FOUNDATION — INNOVATION NETWORK FOR COMMUNITIES

HOW STATE GOVERNMENTS CAN HELP COMMUNITIES INVEST IN CLIMATE RESILIENCE

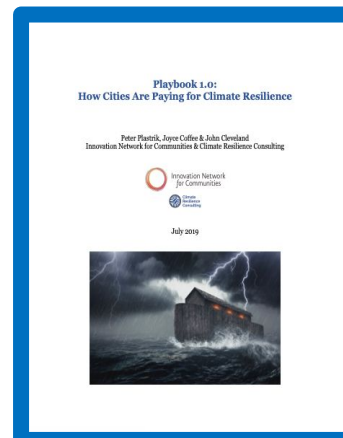
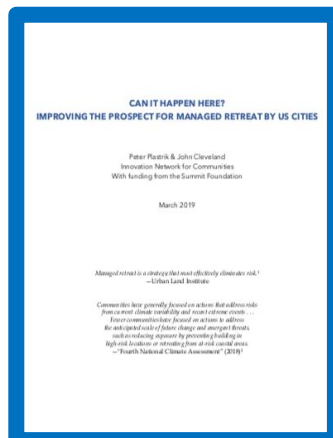
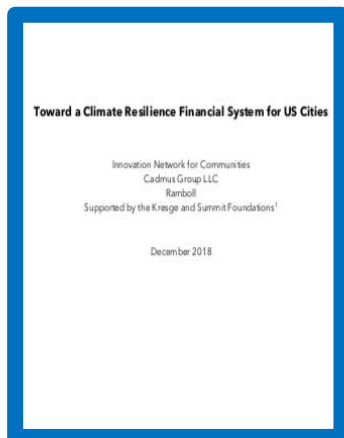
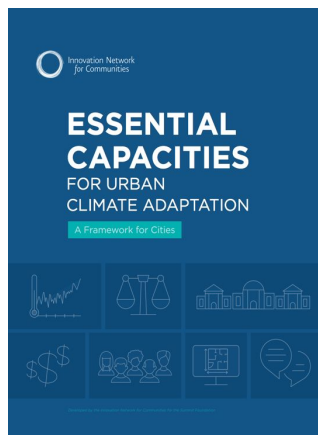
Peter Plastrik — Joyce Coffee — Scott Bernstein — John Cleveland

INC Climate Resilience Report Series



1. Essential Capacities for Urban Climate Adaptation
2. Toward a Climate Resilience Finance System for US Cities
3. Can It Happen Here? – Improving the Prospects for Managed Retreat by US Cities
4. Playbook 1.0 – How Cities Are Paying for Climate Resilience

Link to the reports: <http://lifeaftercarbon.net/reports/>



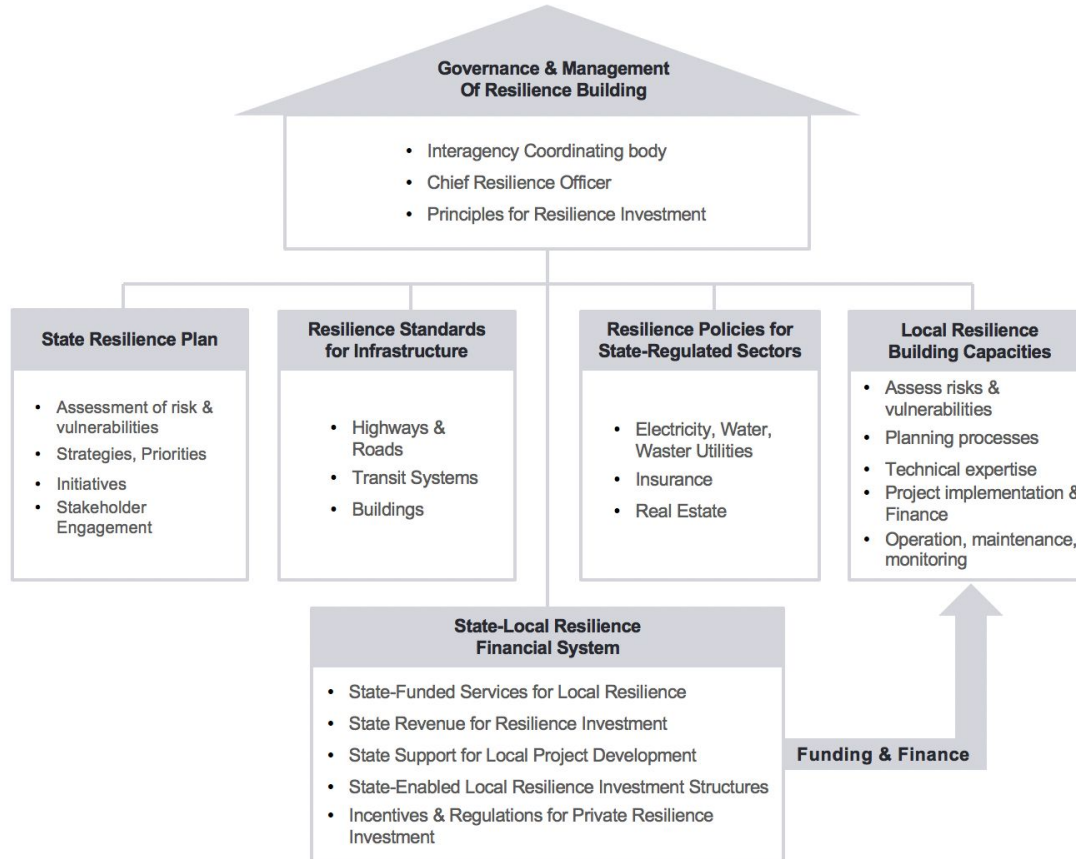
Report's Goal

The challenge of climate resilience is mostly local. But local governments don't have the capacities, including financial wherewithal, to cope alone during the next decades.

States have the ability and responsibility to make a difference in building local climate resilience, they reap the rewards of improving quality of life, fewer disaster impacts and more economic stability for their constituents.

The primary goal of this report is to provide financial strategies that state governments can use to help local governments invest in climate resilience.

State Resilience Framework



7 Capacities of Local Climate Resilience Building*

Scientific Foundation

Capacity to assess and understand climate risks and vulnerabilities of city's built, natural, and economic assets and its populations, and use these analyses for ongoing adaptation planning.

Intergovernmental Alignment

Capacity to coordinate planning and action across governments at local, regional, state, tribal, and federal levels

Communications

Capacity to communicate with and educate civic leaders and community members in ways that build and sustain a sense of urgency to adapt for climate changes.

Technical Design

Capacity to design, test, and implement adaptation actions that require engineering, legal, and other highly specialized details, as well as performance metrics for monitoring.

Equitable Adaptation

Capacity to make social and economic equity a central driver of the city's adaptation approach.

Financial Resources

Capacity to repurpose, leverage, and obtain public and private funds to invest in infrastructure development and other adaptation actions.

Inclusive Community Engagement

Capacity to fully engage stakeholders and the public, especially vulnerable and underrepresented populations, in developing, implementing, and monitoring adaptation plans.

*For detailed examination of each of these capacities, see Innovation Network for Communities, "Essential Capacities for Urban Climate Adaptation: A Framework for Cities," <http://lifeaftercarbon.net/wp-content/uploads/2017/05/City-Adaptation-Essential-Capacities-March2017.pdf>

6 Recommendations for Building State Resilience Financial Systems



01 Provide Basic Services for Local Resilience Strengthening

Specific Basic Services

1. *Climate Data & Risk Analysis*

2. *Technical Guidance & Assistance*

3. *Communications Assets for Resilience*

Case Study: California County-Level Data



Source: <https://www.cdph.ca.gov/>

02 Increase the State's Financial Resources for Resilience Investment

.....

*Raising
Revenue for
Resilience
Building*

.....

1. *Bonding or long-term debt*

2. *Utility rates*

3. *Targeted sectors*

Case Study: Massachusetts Approved \$2.4 Billion Bond for Investments in Climate Adaptation



Source: <https://www.mass.gov/>

03 Support Development of Local Pipelines of Ready-To-Go Projects for Climate Resilience

Specific Pipeline Development Approaches

1. *State inventories of “must do” projects*
2. *Enhance FEMA Hazard Mitigation planning*
3. *Partner with environmental organizations*
4. *Support resilience design competitions*

Case Study: Hurricane Sandy Design Competition, Rebuild by Design



Source: <http://www.rebuildbydesign.org/>

04 Enable Local Funding for Implementing Public Infrastructure Projects

.....

*Specific
Enabling
Environment
Tools*

.....

1. *State Grants & Loans*
2. *Local Taxation Authority*
3. *Local Authority for Special-Purpose Financial Entities*
4. *Credit Ratings*
5. *Removing Barriers*

Case Study: Rhode Island Infrastructure Bank



Source: <https://www.riib.org/>

05 Leverage Private Investment in Local Resilience Using Incentives & Regulations

.....
*Specific
Private
Investment
Leveraging
Mechanisms*
.....

1. *Incentives*

2. *Standards & Regulations*

3. *Targeted sectors*

Case Study: California Climate Smart Insurance Products Database



Source: <http://www.insurance.ca.gov/>

06

Push to Expand & Accelerate Federal Funding for Pre-Disaster Local Action

.....

Press the federal government to increase the amount of funding available for resilience building

.....

1. Leverage resilience beachheads that have been made in several traditional federal funding streams
2. Promote increased & more flexible funding for resilience-relevant traditional federal pots for water and transportation infrastructure
3. Add funding for local community development financial institutions

Case Study: Multi-state – The Great Lakes Initiatives



Source: <https://www.epa.gov/>

Criteria for Equity in State Resilience

Provide technical support, planning and resources to less resourced local governments to develop resilience project ideas into fundable concepts.

01

Offer state resources for inclusive community engagement in local resilience planning.

02

Adopt grant and loan guidelines that require local governments to engage lower resourced neighborhoods in resilience project decision-making.

03

Establish targeted universalism guidelines for grant and loan allocations based on state's risk data.

04

Prevent housing displacement. States can require loan and grant recipients to anticipate and mitigate lower resourced community displacement pressures.

05

Examples of Financial Mechanisms that Can Build Social Equity

General Obligation bonds that combine investment in affordable housing with flood mitigation

01

Stormwater retention credit trading schemes that create credits via a regulator for sellers, inspiring distribution of green infrastructure assets outside city-center

02

Environmental & social impact bonds with quantifiable environmental & social measures that the bond issuer aims to meet with their project & an evaluator verifies

03

Community land trusts to protect community resources for environmental and community benefit and inspire community-based ownership and control of land.

04

Survey

**Please Take a Short Survey about State
Government Climate Resilience Finance!**

Link: <http://ow.ly/g6Ns50B3NwH>

Thank You



Innovative Capital to Address Infrastructure Gaps



RESILIENT RHODY

AN ACTIONABLE VISION FOR ADDRESSING THE
IMPACTS OF CLIMATE CHANGE IN RHODE ISLAND



About the Infrastructure Bank

**Rhode Island's
centralized
hub of local
infrastructure
investment**



Diversified Product Offerings



Wastewater, Sewer
and Stormwater



Drinking Water



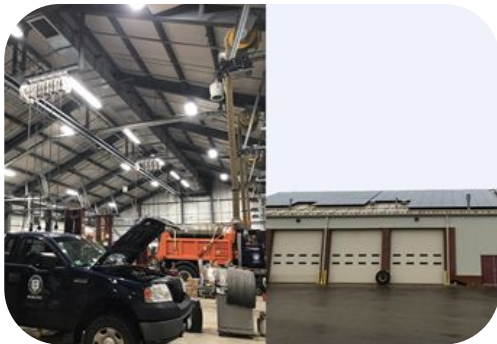
Residential septic
and sewer tie-in



Road and Bridge



Commercial Clean
Energy (C-PACE)



Clean Energy for
Public Sector Entities



In September 2017, Governor Gina M. Raimondo signed an Executive Order appointing a Chief Resilience Officer to drive climate resilience efforts across the state with the mission to develop a statewide action strategy by July 2018.

Resilient Rhody Framework



Making the Case for
Climate Resilience



RESILIENCE THEME:
Emergency Preparedness



RESILIENCE THEME:
Natural Systems



RESILIENCE THEME:
Critical Infrastructure
and Utilities



RESILIENCE THEME:
Community Health
and Resilience



Financing Climate
Resilience Projects

Resilient Rhody by the Numbers

- 61 actions with 1,3,5-year goals
 - 50 of 61 actions achieved year 1 goals
- Accelerate funding and financing
 - Resilient Rhody has been a catalyst for \$13mm in new climate resilience funding
 - \$7mm for Municipal Resilience Program proposed in 2021 budget
- Establishing a process for building a pipeline of climate resilience projects





RESILIENCE THEME:

Financing Climate Resilience Projects

Groundbreaking of the Warren Wastewater Treatment Facility

Communities across Rhode Island face an urgent need to build climate resilient infrastructure that will survive extreme weather events.

There are several existing loan, bond, and grant programs for addressing climate resilience, and many new financing mechanisms currently under development by state and local agencies.

Existing Financing Tools for Climate Resilience

CRITICAL INFRASTRUCTURE AND UTILITIES

FINANCE TOOL	WATER	POWER	TRANSPORTATION
CLEAN WATER STATE REVOLVING FUND	X	X	
DRINKING WATER STATE REVOLVING FUND	X	X	
USDA RURAL DEVELOPMENT LOAN PROGRAM	X	X	
BONDS	X	X	X
RIIB STORMWATER ACCELATOR	X		
EFFICIENT BUILDINGS FUND		X	
WATER INFRASTRUCTURE FINANCE AND INNOVATION FUND	X		
ELECTRIC/GAS RATEPAYER FUNDS		X	
ENERGY SAVINGS PERFORMANCE CONTRACTS		X	
POWER PURCHASE AGREEMENTS		X	
PROPERTY ASSESSED CLEAN ENERGY	X	X	
MUNICIPAL ROAD AND BRIDGE REVOLVING FUND			X
TAX INCREMENT FINANCING	X	X	X

NATURAL SYSTEMS

FINANCE TOOL	COASTAL	INLAND
MITIGATION BANKING	X	X
LAND TRUST	X	X
CLEAN WATER STATE REVOLVING FUND	X	X
DRINKING WATER STATE REVOLVING FUND		X
BONDS	X	X

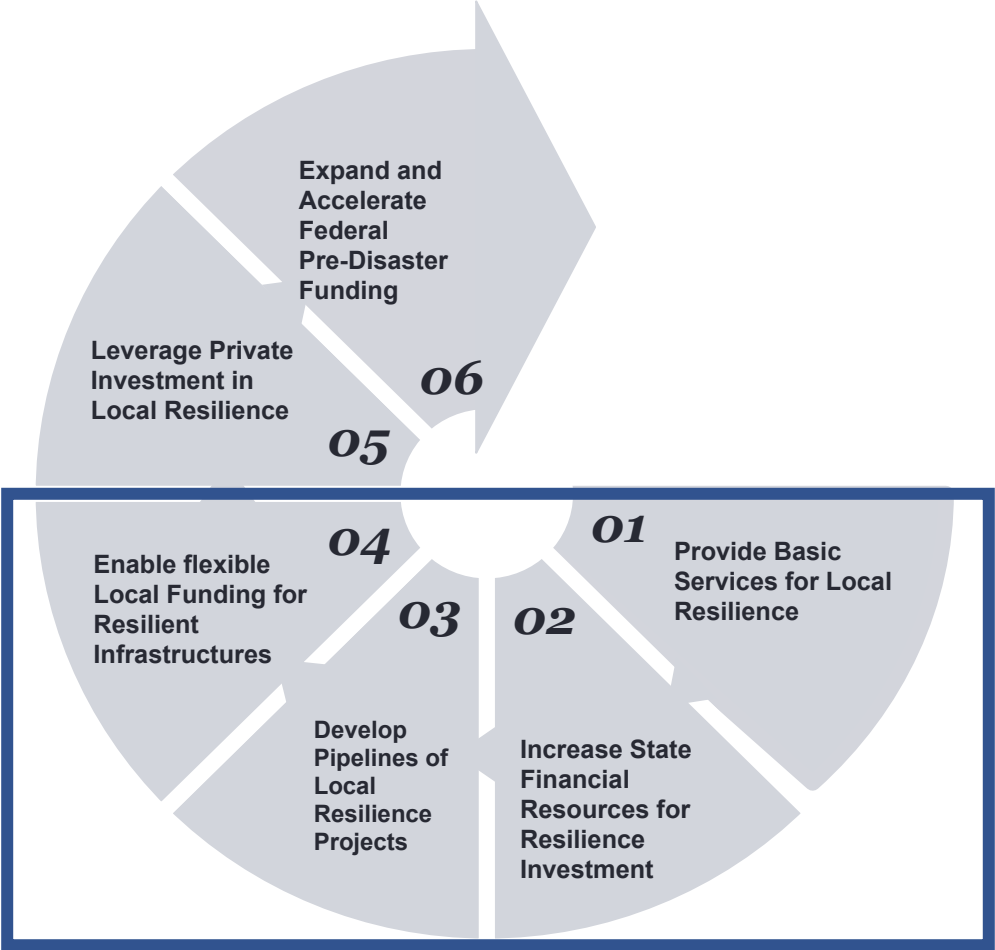
EMERGENCY PREPAREDNESS

FINANCE TOOL	COASTAL	INLAND
EFFICIENT BUILDINGS FUND	X	X
PROPERTY ASSESSED CLEAN ENERGY	X	X
MUNICIPAL ROAD AND BRIDGE REVOLVING FUND	X	
BONDS	X	X

COMMUNITY RESILIENCE

FINANCE TOOL	COASTAL	INLAND
EFFICIENT BUILDINGS FUND	X	
PROPERTY ASSESSED CLEAN ENERGY	X	X
BONDS	X	X
TAX CREDITS		X
FHA MORTGAGES		X

6 Recommendations for Building State Resilience Financial Systems



Resilient Rhody Leadership Structure

1. Provide Basic Services for Local Resilience

The Resilient Rhode Island Act established the Executive Climate Change Coordinating Council (EC4) in 2014.

It also sets specific greenhouse gas reduction targets; establishes two advisory bodies, the EC4 Advisory Board and the EC4 Science and Technical Advisory Board, to assist the Council.



Funding Climate Resilience Projects

2. Increase State Financial Resources for Resilience Investment

- 2018 Climate Resilience Fund

- State awarded \$4.36mm in matching grants to 13 municipalities and organizations for climate resilience projects
- 14 projects to restore and improve the climate resilience of vulnerable coastal and river habitats and infrastructure in floodplains

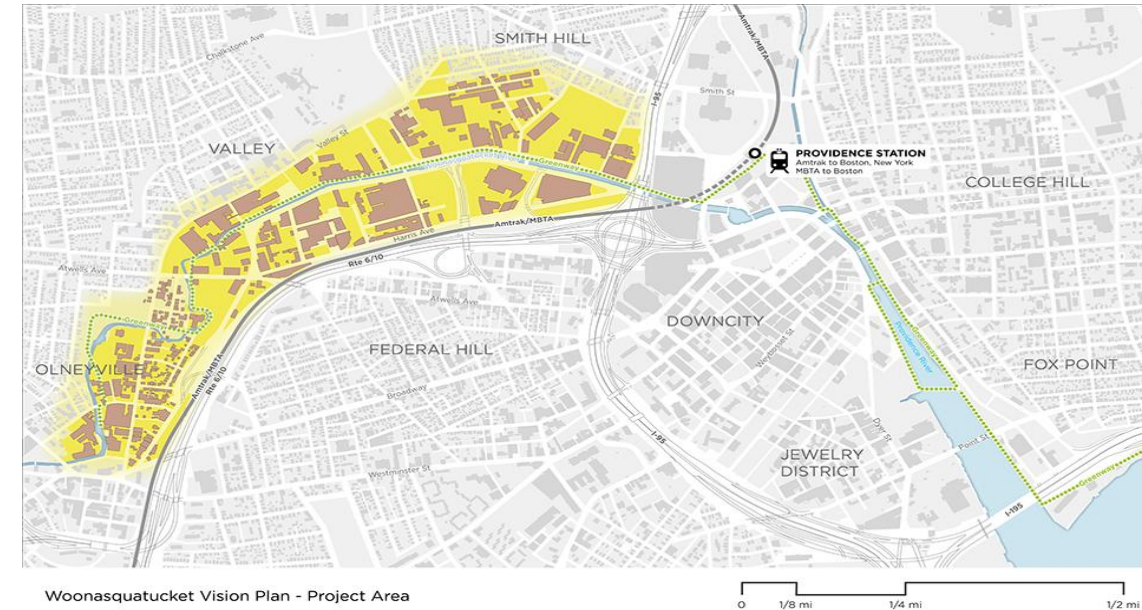
- 2018 Wastewater Treatment Facility Resilience Grants

- State awarded \$4.7mm in matching grants to 15 municipalities



Building a Funding and Implementation Quilt

	Type	Woonasquatucket River Greenway
Clean Water State Revolving Fund	RIIB	Green Stormwater Infrastructure
Clean Water and Stormwater Infrastructure Fund	RIIB	Stormwater Accelerator
Commercial Property Assessed Clean Energy	State	TBD
Brownfield Revolving Loan Fund	RIIB / Local	TBD
Rebuild Rhode Island Tax Credits	Commerce	Mill Renovations and Redevelopment / Farm Fresh
RIDOT Stormwater	State	Stormwater Management and Bike Infrastructure
Rhode Island Green Economy Bond	State	Bay and Watershed Restoration, Bike Grants, Brownfield Grants
Southeast New England Estuary Program (Federal / EPA)	Federal	Stormwater infrastructure
National Fish and Wildlife Foundation & NRCS Conservation Grants	Federal	Green infrastructure demonstration



Resilient Rhody: Municipal Resilience Program

3. Develop Pipelines of Local Resilience Projects

- Partnership between Rhode Island Infrastructure Bank and The Nature Conservancy
- The MRP is open to all 39 municipalities in Rhode Island
- Provides technical assistance to complete the “Community Resilience Building” process to identify projects
- Action grant funding is available to implement priority projects



Resilient Rhody: Municipal Resilience Program

- MRP is building a project pipeline and accelerating implementation
 - 2019 Cohort: Identified 48 Projects totaling ~\$14mm
 - 2019 Cohort: \$1mm in Action Grants allocated from Rhode Island Infrastructure Bank

2019 MRP Action Grants		
Municipality	Project Type	Action Grant Award
Barrington	Coastal restoration and green stormwater infrastructure projects	\$201,000
Portsmouth	Dam rehabilitation and green stormwater infrastructure for flood mitigation and water quality benefit	\$339,000
Warren	Green stormwater infrastructure at public access points	\$156,000
Westerly	Flood protection at wastewater treatment facility pump station	\$304,000
		\$1,000,000

Stormwater and Resilience Project Accelerator

4. Enable flexible Local Funding for Resilient Infrastructures

- Accelerate implementation of stormwater projects through low-cost upfront capital
- Backed by a funding source that will eventually reimburse the project
- First projects completed in fall 2019
- Pipeline of ~\$3M in projects over next 9 months



www.climatechange.ri.gov

Shaun O'Rourke

Director of Stormwater and Resilience, Rhode Island Infrastructure Bank

Chief Resilience Officer, State of Rhode Island

sorourke@riib.org @shaun_orourke



Overview of Outcomes-Based Financing: ASAP Webinar: Innovations in Adaptation Finance

Ben Cohen, *Director, Urban and Coastal Resilience*

August 25, 2020

Agenda

- **Who is Quantified Ventures?**
- What is Outcomes-Based Financing?
- Case Studies
- Questions

Quantified Ventures is an
outcomes-based capital firm
that drives transformational health,
social, and environmental impact.

We Need Innovative Ways to Pay for Solutions

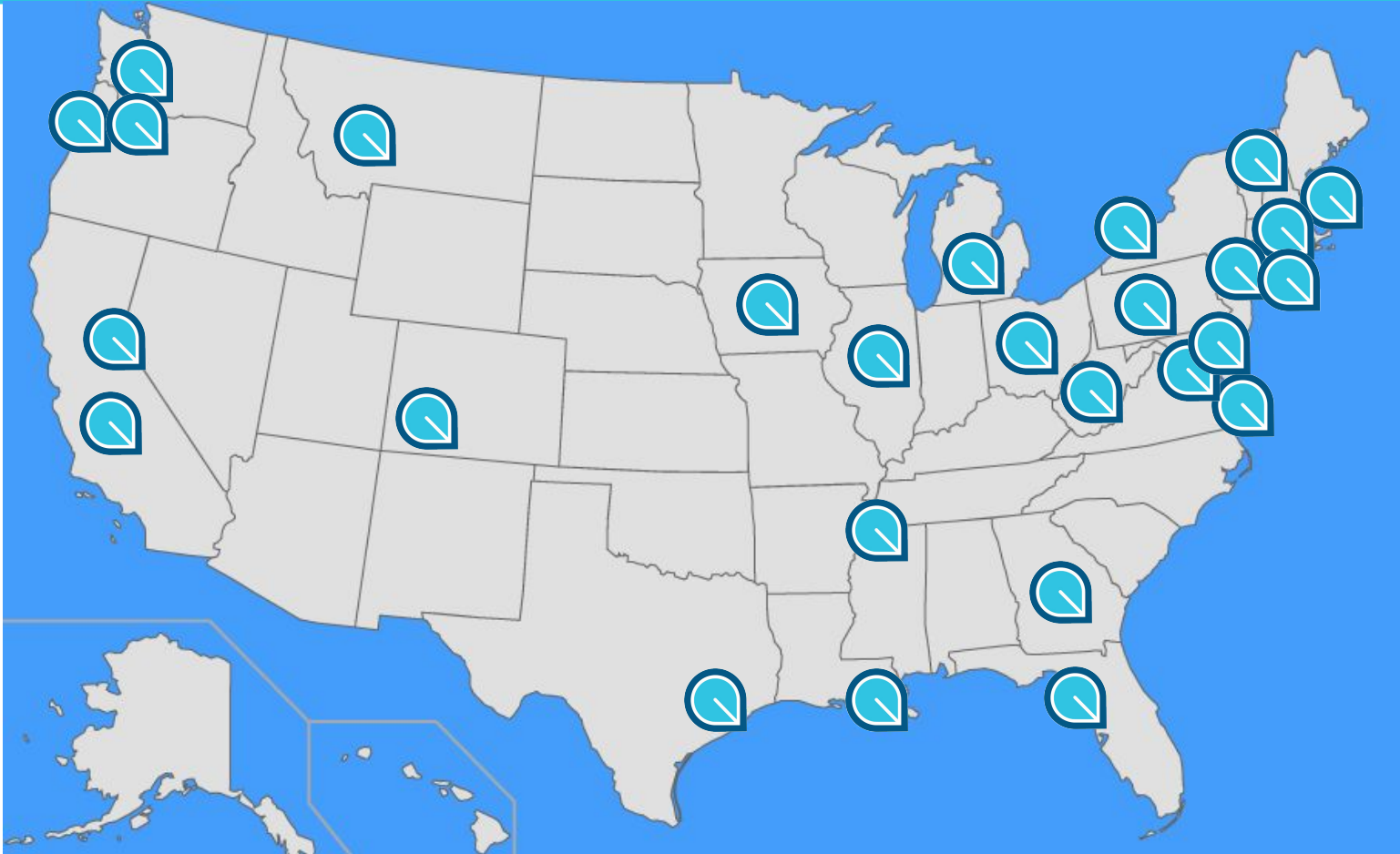
- **The challenges are complex:** Most challenges involve multiple stakeholders. Both public and private sectors need bold solutions to solve big and complex health, social, and environment challenges.
- **But budgets are strained:** Resources are finite and funding for services and infrastructure has been flat or declining for decades. There is a \$1.4 trillion shortfall in infrastructure investment alone through 2025.*
- **Investors are motivated:** They are increasingly looking for opportunities to deploy capital to solutions that yield both financial and social returns. Impact capital is estimated at over \$500 billion and growing worldwide.**

* 2017 Infrastructure Report Card, American Society of Civil Engineers (ASCE)

** Global Impact Investing Network (GIIN)



Where We Work



We deliver:

- Consulting
- Transaction Structuring
- Fund Management

Our Practice Areas



**Forestry and
Land Use**



**Urban and Coastal
Resilience**



Agriculture



**Health and Human
Services**

We Work With...

Governments



Environmental Organizations



Health and Human Services



Foundations



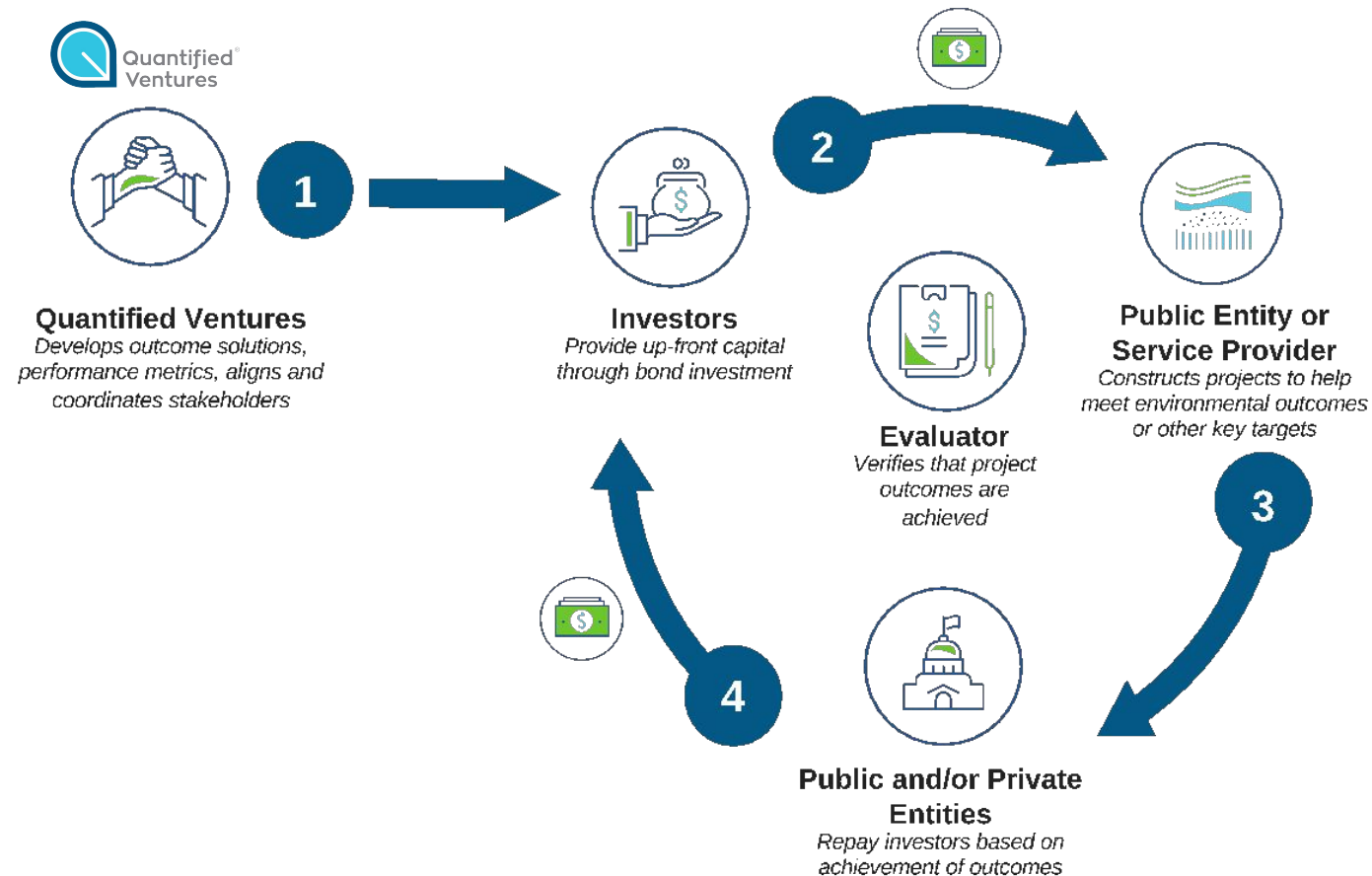
Corporate Partners



Agenda

- Who is Quantified Ventures?
- **What is Outcomes-Based Financing?**
- Case Studies
- Questions

An Environmental Impact Bond (EIB) Ties Repayment to Outcomes



Benefits of Outcomes-Based Financing

- **Transfer performance risk** of innovative projects to investors
- **Access new sources of investment capital**
- **Showcase partners and their projects**, attracting internal and external support
- **Engage diverse and new stakeholders** benefitting from projects, potentially to contribute financing for them
- **Measure and track outcomes** through embedded performance evaluation
- **Build an evidence base** to inform future project planning



Agenda

- Who is Quantified Ventures?
- What is Outcomes-Based Financing?
- **Case Studies**
- Questions

DC Water & Sewer Authority

- **Status:** First ever EIB, closed in December 2016
- **Goal:** Determine how green infrastructure alternatives can replace planned grey infrastructure in complying with a consent decree to reduce Combined Sewer Overflows (CSOs).
- **Context:**
 - DC's \$2.6 billion stormwater capital plan combining grey and green
 - 25-acre pilot will inform how much of the solution can be GI
- **EIB Design:**
 - \$25 million municipal EIB for green infrastructure construction
 - Investor payments tied to stormwater volume capture outcomes

Atlanta Department of Watershed Management

- **Status:** First public offering of an EIB, closed in January 2019
- **Goal:** Manage stormwater in environmentally and economically distressed neighborhoods with 6 green infrastructure projects as community assets.
- **Context:**
 - Need for capital to finance high impact projects that lacked access to funding
 - Interest in showcasing city leadership in addressing environmental, social & equity challenges
- **EIB Design:**
 - \$14 million municipal EIB for green infrastructure construction
 - Payment to investors tied to volume capture outcomes – linked to impact on vulnerable communities



Buffalo Sewer Authority

- **Goal:** Reduce CSO events in a cost-effective way by incentivizing green infrastructure practices on private property
- **Context:**
 - Projects in the public right-of-way can be expensive
 - Large private properties can help manage stormwater
- **EIB Design:**
 - \$30 million EIB to capitalize an incentive program for green infrastructure on private property, plus cover some design and construction of public projects.
 - Performance payment to investors tied to acres managed through the grant program

Finance New Orleans

- **Goal:** Create an outcomes-based Green Infrastructure Secondary Mortgage product that will finance climate resilience projects for homeowners, businesses and the City.
- **Context:**
 - Flooding from regular storms indicates need for additional water retention on private and public property.
 - Other resilience projects for renewable energy production and energy efficiency lack capital.
- **EIB Design:**
 - \$30 million EIB for green mortgages and loans for public green infrastructure and energy efficiency projects
 - Payment to investors tied to water retention and energy savings (efficiency + renewables) outcomes





Colorado: Environmental Impact Fund (EIF)

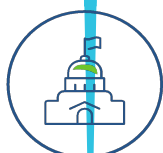
- **Goal:** Use a multi-payor, outcomes-based fund to enable long-term cross-boundary wildfire risk mitigation. Stacking payors, capital, biomass revenues, and public & philanthropic contributions to minimize funding required of small rural communities.
 - **Context:**
 - EIF needed to increase scale of interventions around San Juan National Forest (nonfederal land) to reduce wildfire risk
 - Increased scale can support local biomass industry (renewable power, biochar, etc.)
 - Rural communities lack financial capacity to scale up treatments
 - **EIF Design:**
 - Use public bond issuance to capitalize a revolving fund, enabling treatment implementation and self-sustainability over the long term
 - EIF proceeds complemented by private cost-share, federal contributions, and revenues from biomass sales
- Rural communities repay loans based on risk mitigation outcomes

Iowa: Outcomes-Based P3

- **Transaction Goal:** Working with Iowa Soybean Association to implement a first of kind multi-payor P3 approach, to monetize the multiple benefits of agriculture BMP implementation
- **Outcomes:** Reduced nutrient loading credited against municipal water permits, enhanced carbon sequestration in soils

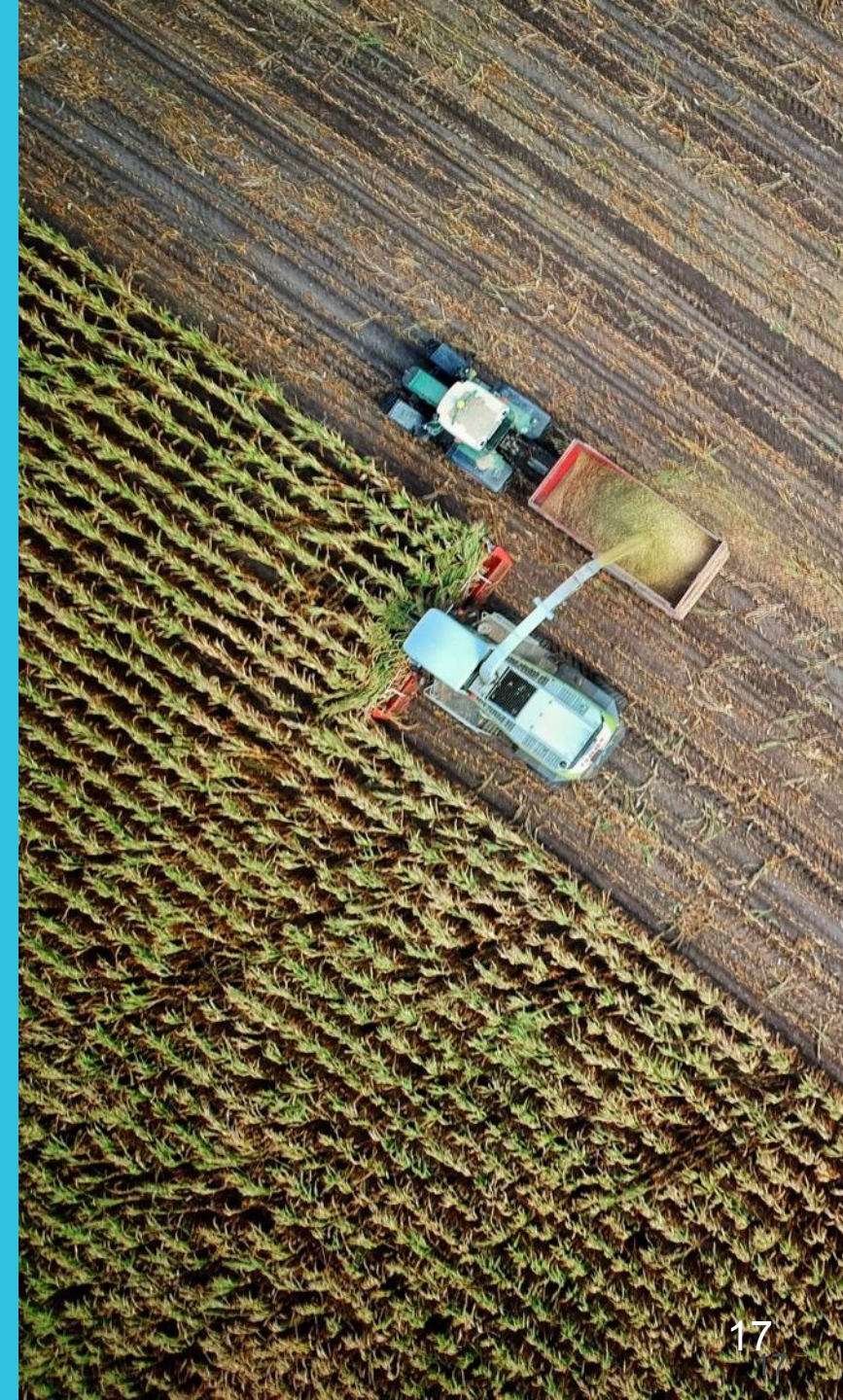


Upstream farmers provided with financial incentives to implement agriculture BMPs like reduced tillage and cover crops and structural improvements like nitrate removal wetlands



Cargill[®]

Water quality outcomes sold to municipalities, carbon sequestration outcomes to agribusiness to meet supply chain sustainability targets



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- Who is Quantified Ventures?
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- **Questions**

Thank You! Questions and Discussion



Ben Cohen,
Director
cohen@quantifiedventures.com

AMERICAN SOCIETY OF ADAPTATION PROFESSIONALS

Transferring Lessons on Climate Ready Infrastructure

- **Beth Gibbons**, Executive Director, ASAP
- **Shalini Vajjhala**, Founder & CEO re:focus partners

Thank you to our presenters, panelists & moderator!

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www.adaptationprofessionals.org

Co-Creation Webinar Series

Webinar 3 October 2020

Driving Equity & Justice through private partnerships

Webinar 4 December 2020

Corporate Climate Leadership and TCFD Journey

Climate Service Providers Academy

Starting September 22

- *Access to best available data for the Great Lakes Region*
- *Introduction to public and private partners & resources*
- *Customized Service Improvement Plan*

The climate is changing.

Now is the time for action. This is the place for you.

Join Us



Learn More: www.AdaptationProfessionals.org

Beth Gibbons, Bgibbons@adaptpros.org