

ADAPTATION CO-CREATION SERIES

The space where innovation and climate resilience meet

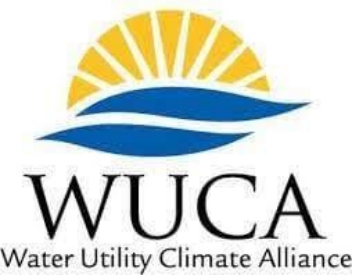
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/adaptation-co-creation-series](http://www.adaptationprofessionals.org/adaptation-co-creation-series)



ADAPTATION CO-CREATION SERIES

Webinar 8: Designing Utilities of the Future

How water utilities are keeping up with climate change.



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Tech Check!



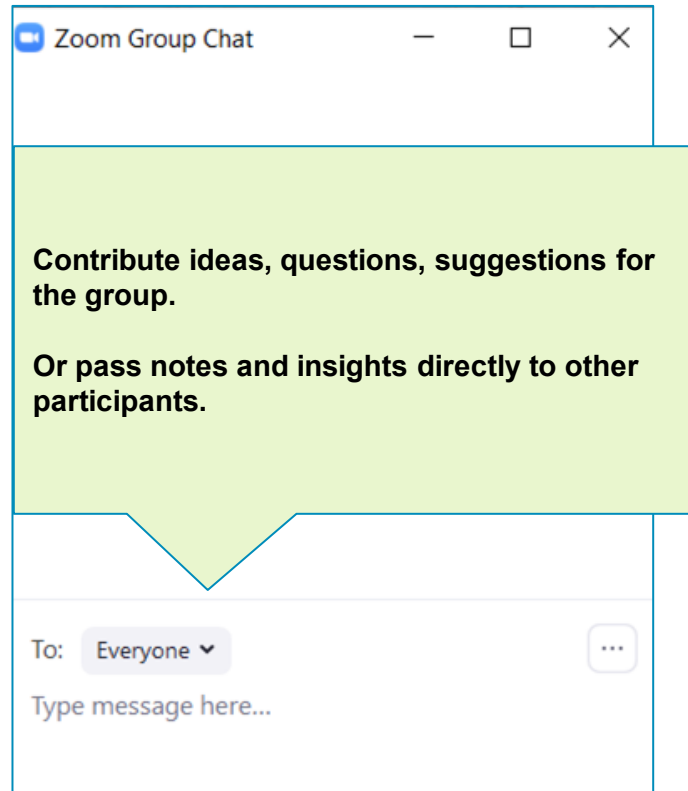
- ▶ Microphones Off



- ▶ Cameras off, except presenters



- ▶ Questions posted in chat or via Q&A Box

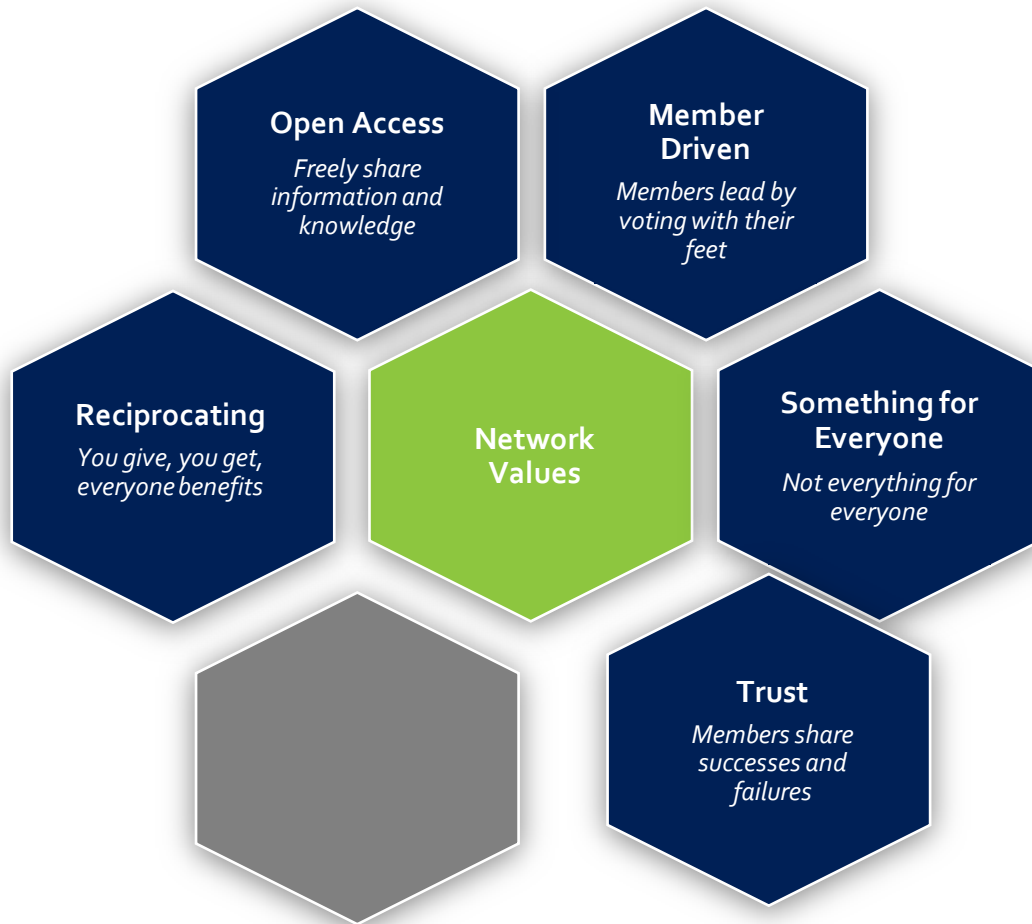


Tech Help:
Breana Nehls, ASAP Program Manager



What does ASAP do?

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





ASAP Connects



*Meet new people and
explore new ideas*

Adaptation Careers



*Excel in your job &
find new
opportunities*

Adaptation Voices

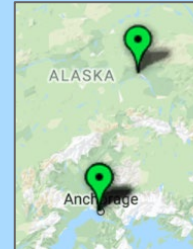
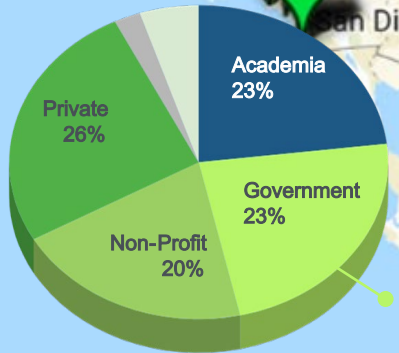
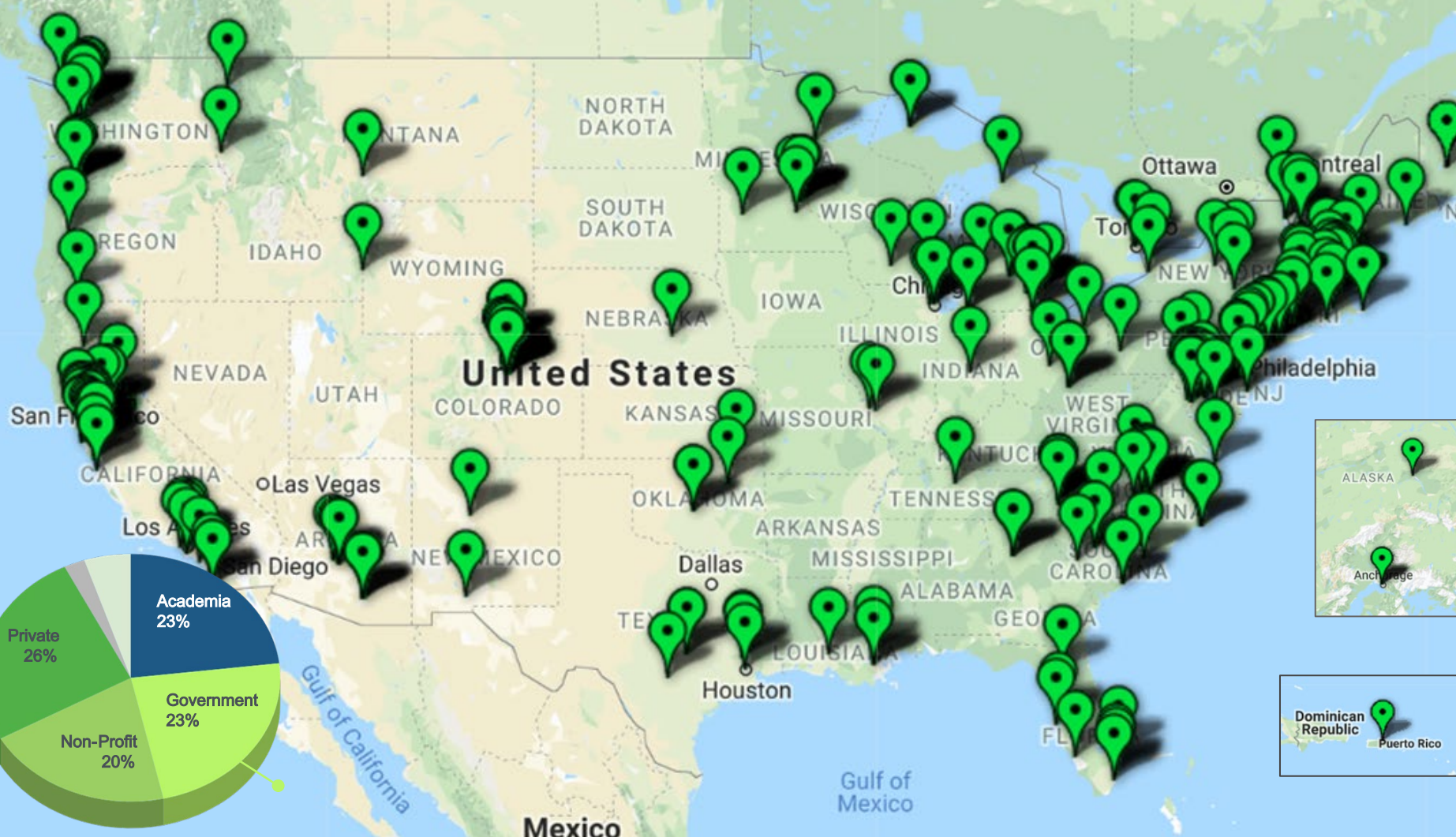


*Get and give essential
stories, news, &
resources*

ASAP Serves



*Become an
adaptation leader &
give back to the field*





Plus

- Parametrix
- Climate Resilience Fund

*Join us in driving forward
transformative adaptation & resilience*



ADAPTATION CO-CREATION SERIES

The space where innovation and climate resilience meet

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ADAPTATION CO-CREATION SERIES

What to Expect

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

[www.adaptationprofessionals.org/
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Past Webinars

- ▶ Reducing flooding through updated design codes & standards
- ▶ Innovations in Adaptation Finance
- ▶ Corporate Adaptation & the TCFD Journey
- ▶ Bridging the Partisan Divide with Climate Resilience Solutions
- ▶ Visualizing Change! Using visualization tools to move decision ahead.
- ▶ Building Resilience: From Structure to Community



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How water utilities are keeping up with climate change.



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ADAPTATION CO-CREATION SERIES

Webinar 8: Designing Utilities of the Future

How water utilities are keeping up with climate change.



Kavita Heyn
Portland Water Bureau,
Chair of the Water Utility
Climate Alliance



Julie Vano
Aspen Global Change
Institute



Emily Wasley
WSP,
President of ASAP's
Board of Directors



Kari Davis
Alliance for Global Water
Adaptation



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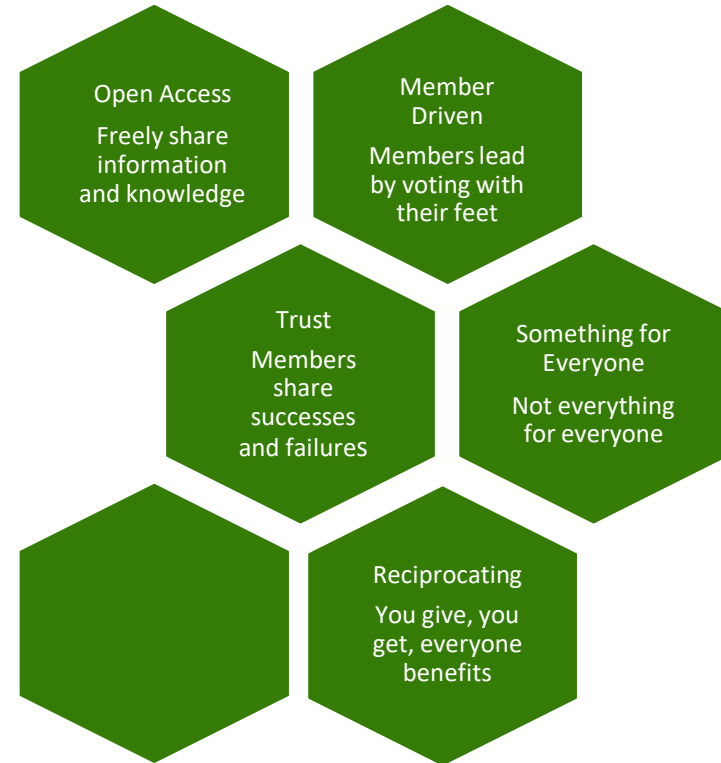


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Adaptation Co-Creation Series

Speaker Transition

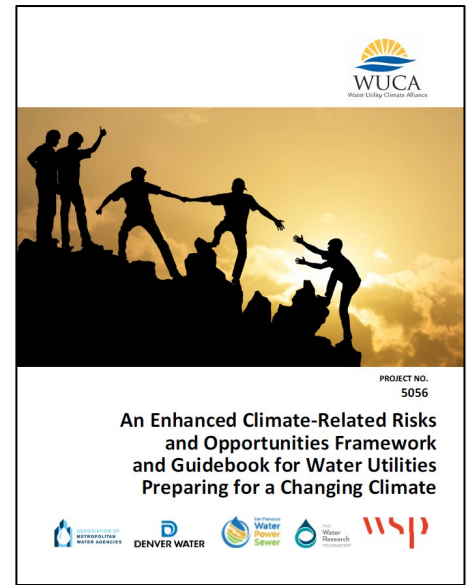
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An Enhanced Climate-Related Risks and Opportunities Framework and Guidebook for Water Utilities Preparing for a Changing Climate

November 1, 2021





WUCA's 2017-2021 Strategic Plan



WUCA's 2022 – 2026 Strategic Plan

<p><i>Mainstream and Operationalize</i></p> <p>Integrate climate change into <u>water utility business practices</u></p>	1. Increase climate literacy within member utilities
	2. Research when and how to use climate information in utility decisions and business practices
	3. Document mainstreaming practices

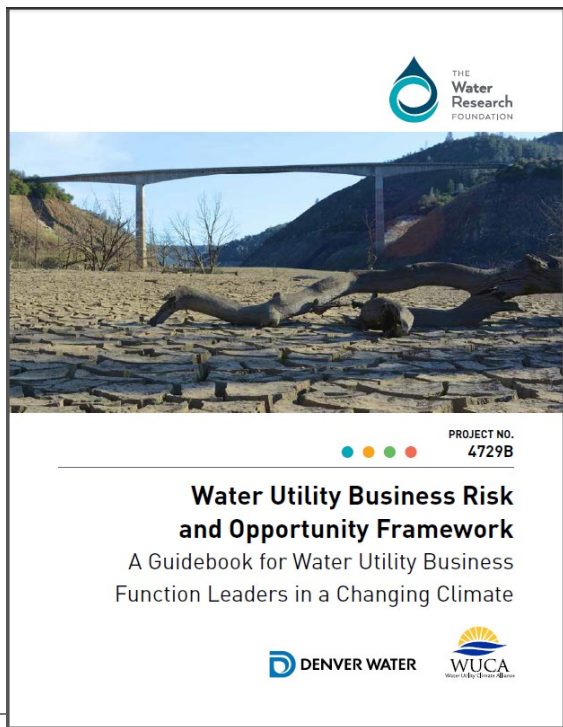
<p><i>Mainstream and Operationalize</i></p> <p>Integrate climate change <u>adaptation</u> into a range of <u>water utility services</u>, including planning, design, operations, and management.</p>	1. Continue to develop practical examples and case studies of climate adaptation and climate mitigation.
	2. Facilitate continuous peer to peer learning on mainstreaming practices with other WUCAs and the WUCA network.
	3. Promote the use of climate information and WUCA leading practices within member utilities' decisions, operations, and business practices

Source: <https://www.wucaonline.org/assets/pdf/about-strategic-plan-2026.pdf>



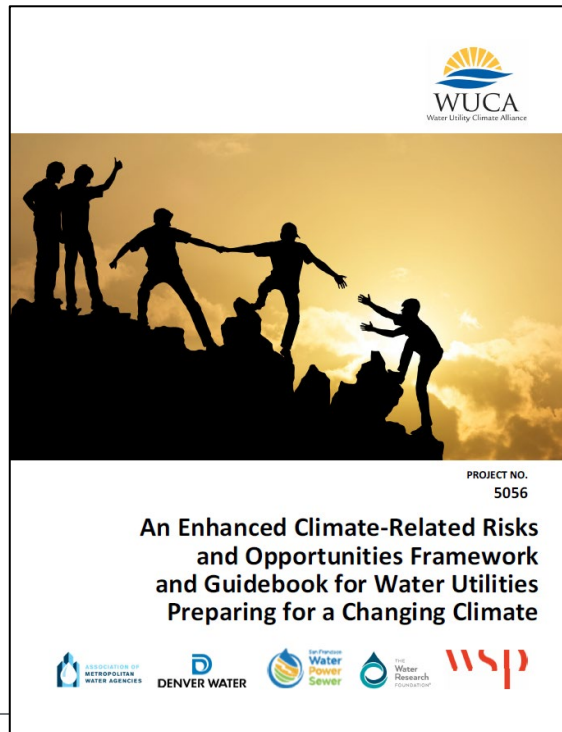
Published in 2020

- **Guidebook & Framework**
- Research Report
- 7 brief case studies & data sources



Published in 2021

- **Enhanced Guidebook & Framework**
- More in-depth discussions with staff
- Denver Water & SFPUC



Free from WRF & WUCA websites

<https://www.waterrf.org>

<https://www.wucaonline.org/>



Project Overview

GOALS

- (1) Pilot Test the Framework:** Pilot test the *Water Utility Business Risk and Opportunity Framework* and associated Guidebook in partnership with Denver Water and the San Francisco Public Utilities Commission (SFPUC).
- (2) Enhance the Framework:** Enhance the Framework, so that it remains adaptive, flexible, and tailorable to help utilities define their focus for a risk and opportunity assessment, ask key climate questions, map climate impacts relative to mission-critical business functions, and pinpoint risks and opportunities across those business functions.
- (3) Begin Mainstreaming Climate Change:** Begin identifying opportunities to accelerate the mainstreaming of climate considerations and resilience into utility management.

OBJECTIVES

1. Research and Compare Existing Frameworks
2. Pilot Test the Framework and the Guidebook with Two Water Utilities

3. Expand and Update the Framework and Guidebook
4. Generate Communication and Outreach Materials

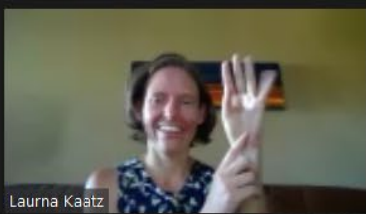




Nitin Natarajan



Kim Grubert



Laurina Kaatz



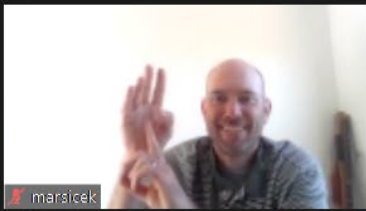
Cindy Marshall



MXN



Taylor Winchell



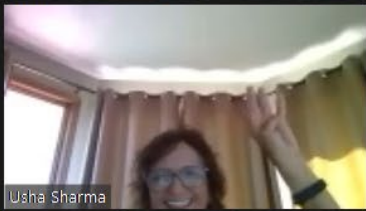
marsicek



Patty Brubaker



Bob Peters



Usha Sharma



aaslam



Emily Wasley



Erin Gleason



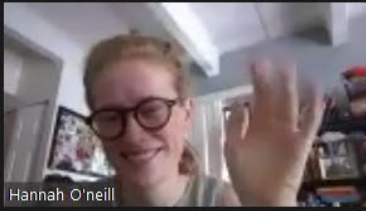
Alison Witheridge



r davis



Steve Reeves



Hannah O'neil



Madelene McDonald



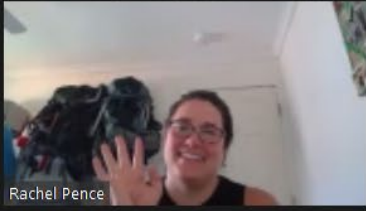
Christina Burri



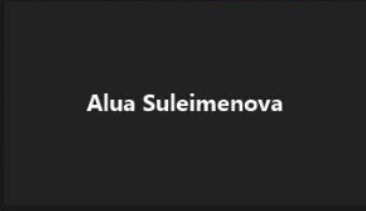
Rachel Badger



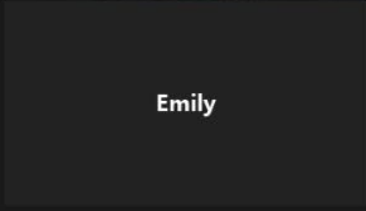
Jeff Tejral



Rachel Pence



Alua Suleimenova



Emily



Mohammed



Navigating the Framework

Steps in grey are the “**BASIC**” steps utilities can take to begin identifying climate risks and opportunities.

Steps in blue are the “**ADVANCED**” steps for those utilities who may already be on their journey to assess climate change impacts to critical business functions, want to design and conduct a tabletop exercise (TTX), and are working to more holistically mainstream climate risks, adaptation, and resilience into all relevant plans, policies, and procedures.

Before the Business Function Mapping Tabletop Exercise

These are steps that should be taken before a TTX or facilitated workshop:

- Step 1:** Define Assessment Objectives and Initiate Planning
- Step 2:** Determine the Focus for the Assessment
- Step 3:** Design and Prepare for a Climate Risk and Opportunity Mapping Workshop or Tabletop Exercise (TTX)

During the Business Function Mapping Tabletop Exercise

These are steps that should be taken during a TTX or facilitated workshop:

- Step 4:** Map Potential Impacts of Climate Stressors and Cascading Effects
- Step 5:** Identify and Prioritize Risks Relative to Mission-critical Business Functions
- Step 6:** Identify Opportunities and Solutions Across Business Functions



Mapping Climate-related Risks and Opportunities to Water Utility Business Functions: A Framework

Before the Business Function Mapping Tabletop Exercise

During the Business Function Mapping Tabletop Exercise

Step 1. Define Assessment Objectives and Initiate Planning

Step 1a. Articulate the value of investing in the assessment

Step 1b. Define assessment objectives with utility leadership

Step 1c. Identify an internal assessment leader

Step 1d. Develop an assessment scope, timeline, and budget

Step 2. Determine the Focus for the Assessment

Step 2a. Review Figure 4 in the supplemental Guidebook to identify business functions and critical sub-functions for the water utility

Step 2b. Prioritize mission-critical business functions to assess

Step 2c. Form a cross-functional working group or exercise planning team (EPT)

Step 2d. Identify existing people, resources, and background materials to establish a foundation of known and projected (future) climate conditions

Step 2e. Schedule regular briefings with the leadership team

Step 3. Design and Prepare for a Climate Risk and Opportunity Mapping Workshop or Tabletop Exercise (TTX)

Step 3a. Prepare for and design an interactive TTX or workshop by conducting initial, midterm, and final planning meetings with the working group or EPT

Step 3b. Conduct a "Climate 101" training to establish baseline knowledge

Step 3c. Design exercise scenarios and time horizons to be used to explore impacts, opportunities, and solutions

Step 3d. Develop the TTX agenda and associated materials and prepare for TTX conduct

Step 4. Map Potential Impacts of Climate Stressors and Cascading Effects

Step 4a. Identify critical path activities, decision points, and existing processes for each business function

Step 4b. Discuss existing underlying conditions and vulnerabilities for each business function

Step 4c. Identify key climate stressors relevant to the business functions

Step 4d. Brainstorm and map how climate stressors intersect with existing vulnerabilities and identify cascading effects for each business function

Step 5. Identify and Prioritize Risks Relative to Mission-critical Business Functions

Step 5a. Discuss the water utility's risk tolerance

Step 5b. Define climate risk prioritization criteria (high, medium, low)

Step 5c. Assess and prioritize risks for each selected business function

Step 5d. Identify gaps in data and information that are needed to inform climate-related assessments and decision-making

Step 6. Identify Opportunities and Solutions Across Business Functions

Step 6a. Develop an initial set of solutions, opportunities, and associated co-benefits

Step 6b. Identify short- and long-term solutions to manage risks and maximize sustainability and resilience opportunities

Step 6c. Develop recommendations to implement solutions and assign business function points of contact

Step 6d. Present findings and discuss next steps for implementation with the leadership team

Step 6e. Establish a process for reevaluating assessment findings, objectives, and assessing additional business functions; monitor and regularly report progress

HOW TO READ THIS GRAPHIC:

Steps in grey are the "BASIC" steps utilities can take to begin identifying climate risks and opportunities.

Steps in blue are the "ADVANCED" steps for those utilities who may already be on their journey to assess climate change impacts to critical business functions and are working to more holistically mainstream climate risks, adaptation, and resilience into all relevant plans, policies, and procedures.



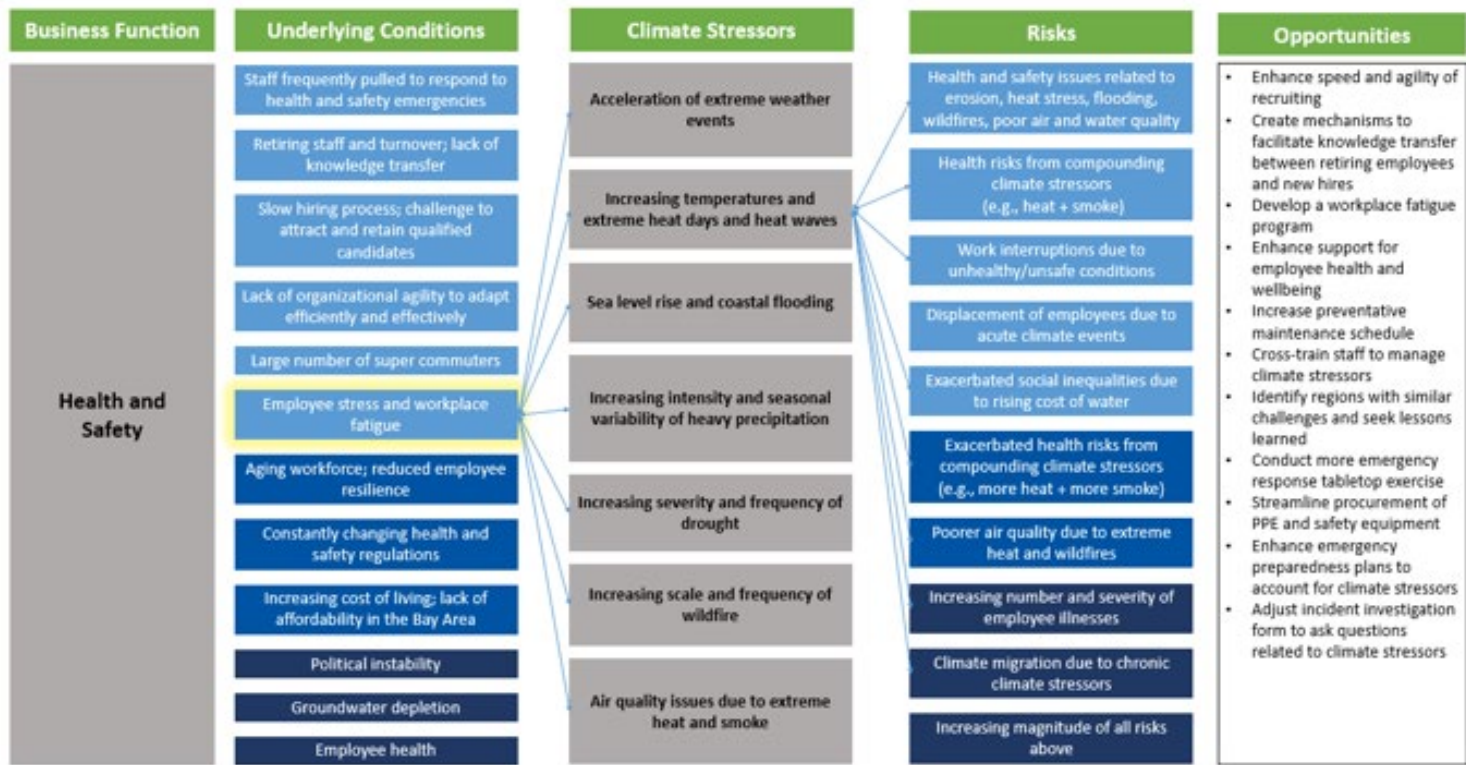


Example Business Function Map



Health and Safety Example: Employee Stress and Workplace Fatigue

Key: 2020 2040 2070





Climate Change Tabletop Exercise Outcomes



Over 70 opportunities/solutions identified

Investing in new climate research

Expanding tabletop exercise approach

Enhancing education, engagement, and communication across the enterprise



Over 40 opportunities/solutions identified

Enhancing disclosure of climate-related risks

Embedding climate considerations into processes and plans, including those related to health and safety and

Hosting monthly climate coordination meetings and developing a climate policy

Mainstreaming is the act of proactively streamlining and embedding climate information into current and future practices, plans, and decisions to be Future Ready™.





Increasing Pressure to Publicly Report Climate-related Risks and Opportunities



"We know that climate risk is investment risk. But we also believe the climate transition presents a historic investment opportunity."

- Larry Fink, CEO BlackRock in his 2021 Letter to CEOs



"It is our responsibility to ensure that [investors] have access to material information when planning for their financial future."

- Allison Herren Lee, Acting Chair of the U.S. SEC

***In May 2021, President Biden signed an Executive Order on Climate-related Financial Risk
In June 2021, the G7 announced support for mandatory climate reporting***



ASAP PRESENTATION ON
**Leading
Practices in
Climate Change
Adaptation**

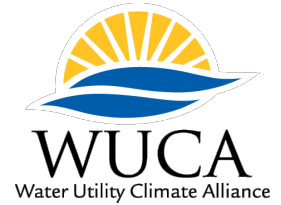
**NOVEMBER 1, 2021
(VIRTUAL)**



Laurina Kaatz, *Project Lead*, Denver Water, WUCA Past Chair
Kavita Heyn, *Portland Water Bureau*, WUCA Chair
Julie Vano, *Research Lead*, Aspen Global Change Institute

Alan Cohn, New York City Dept of Env. Protection, WUCA Vice Chair
Heather Dalrymple and Marisa Flores-Gonzalez, Austin Water
Mohammed Mahmoud, Central Arizona Project
Jennifer McCarthy, Metropolitan Water District of Southern California
Abby Sullivan and Julia Rockwell, Philadelphia Water Department
Seevani Bista and Goldamer Herbon, San Diego County Water Authority
David Behar, San Francisco Public Utilities Commission
Danielle Purnell and Ann Grodnik-Nagle, Seattle Public Utilities
Keely Brooks, Southern Nevada Water Authority
Tirusew Asefa, Tampa Bay Water

Water Utility Climate Alliance



Mission: Collaboratively advancing water utility climate change adaptation
Vision: Climate-resilient water utilities supporting thriving communities

Climate-resilient water utilities are an essential part of strong communities. WUCA strives to advance water utility climate adaptation so that communities can thrive in a changing world.

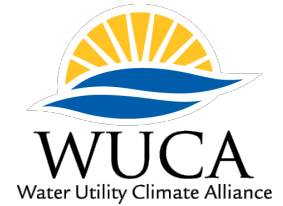




Learning
How to Adapt
to a Changing
Climate
Together



Leading Practices in Climate Adaptation



Goal: gather and share WUCA's experiences to help develop and implement climate change adaptation more effectively.



Path: develop a set of versatile Leading Practices, grounded in WUCA experiences, that spur innovations within and across utilities and with the adaptation community more broadly.

CLIMATE ADAPTATION ACTION AREAS





ENGAGE

- [Recognize many ways to motivate climate adaptation action](#)
- [Seek out and support climate champions throughout your utility](#)
- [Consult expertise throughout your utility regularly and with purpose](#)
- [Tailor the climate adaptation message for the intended audience](#)
- [Develop a climate communications plan](#)
- [Include equity from the beginning](#)
- [Make the business case for climate adaptation](#)

UNDERSTAND

- [Invest in understanding climate science](#)
- [Explore how extremes might change in the future](#)
- [Value simple vulnerability assessments](#)
- [Foster sustained relationships with the climate science community](#)
- [Know your water system](#)
- [Think broadly about climate impacts](#)
- [Be a savvy consumer: recognize values and limits of climate science in practice](#)
- [Know your past climate conditions](#)
- [Recognize the value of long-term monitoring](#)

PLAN

- [Connect with ongoing or upcoming planning processes](#)
- [Leverage the power of well-placed climate change screening questions](#)
- [Be prepared to be changed by the process](#)
- [Learn from earlier climate change planning efforts](#)
- [Develop tools that allow information customization](#)

- [Take on climate change as another component of risk management](#)
- [Leverage existing funding mechanisms](#)
- [Plan for a range of futures, not a single future](#)
- [Employ decision-making science and deep uncertainty concepts](#)
- [Build and maintain in-house capacity](#)

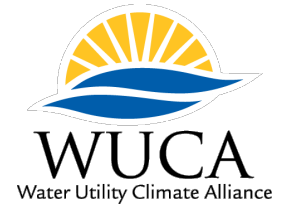
IMPLEMENT

- [Be prepared to act when opportunities arise](#)
- [Find co-benefits and no- and low-regret adaptation strategies](#)
- [Recognize some adaptations can be employed quickly](#)
- [Recognize smaller changes can lead to bigger ones](#)
- [Focus on your organization's core responsibilities first](#)
- [Enact incentives or policies that change behavior](#)
- [Enact changes in infrastructure and operations](#)

SUSTAIN

- [Make the business case for climate adaptation](#)
- [Leverage existing funding mechanisms](#)
- [Monitor and evaluate current conditions](#)
- [Approach climate adaptation through mainstreaming](#)
- [Avoid new climate science whiplash](#)
- [Keep moving forward, even if it feels slow](#)
- [Value climate adaptation as more than a plan](#)
- [Establish a community of practice to integrate climate change adaptation](#)
- [Build and maintain in-house capacity](#)
- [Seek out and support climate champions throughout your utility](#)

Composition of a Leading Practice



UNDERSTAND

Foster sustained relationships with the climate science community

Climate science continues to advance, providing new data, tools, and knowledge. Long-term relationships with those who study climate science and provide climate services can help you navigate what is new and relevant and help scientists focus on questions that matter to society. The relationship, how it is established and maintained, can vary, thus opportunities exist that span a range of needs and resources.

Example: Adding a partnering objective into one's business plan

San Diego County Water Authority's (SDCWA) 2017-2021 Business Plan contains a sustainability program that includes climate change management strategies focused on maintaining a leadership role in collaboratively advancing climate science research. A key objective of the climate change strategy is to partner with those doing leading-edge climate science to develop strategies in adaptation, sustainability, and resiliency. This has resulted in SDCWA partnering with the Scripps Institution of Oceanography's research arm, the Center for Western Weather and Water Extremes (CW3E).

SDCWA is a founding member of CW3E, which is focused on advancing understanding of atmospheric rivers and droughts to improve water management, mitigate flood risk, and increase water supply reliability. SDCWA has also collaborated with consultants and the Bureau of Reclamation to develop climate change-impacted demand and supply scenarios, as well as do evaluations of climate change impacts on surface water runoff (see [UNDERSTAND: Invest in understanding climate science](#) for more details).

Examples: Piloting Utility Modeling Applications (PUMA)

WUCA PUMA projects aimed to foster relationships, and many of the connections made remain strong today. As described in the final report on PUMA, "The PUMA project was an effort to produce actionable science through close collaboration between climate experts and utility personnel to meet the needs of four water utilities.

Instead of asking climate experts what they thought utilities should do regarding climate change, four WUCA utilities agreed to forge partnerships with scientific institutions to explore how to integrate climate considerations into their specific management context." [Read the PUMA report.](#) [PDF](#)

Additional climate service resources

If you do not have adaptation staff or funding to work with researchers, these resources can help support your effort:

- Your [local NOAA RISA Group](#)
- Your [regional USGS Climate Adaptation Science Center](#)
- Your [USDA Climate Hub](#)

These types of "boundary organizations" exist to help connect researchers and practitioners at the regional level.

Several non-federal organizations that also focus on serving communities:

- [Thriving Earth Exchange](#)
- [Mountain West Climate Services Partnership](#)

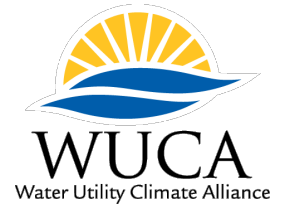
There are also tools, reports, and trainings that provide free technical climate science information, including (but not limited to):

- [US Climate Resilience Toolkit](#)
- [US Climate Explorer](#)
- [National Climate Assessment](#)
- [National Center for Atmospheric Research resources](#)

- Leading Practice headline at the top. Circle indicates action area
- 1-3 sentence description of leading practice, common across utilities

Examples: from individual utilities, 1-2 paragraph explanation and links to additional information
Additional Resources: related leading practices, links to similar efforts, educational materials

ENGAGE



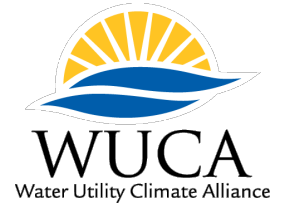
Seek out and support climate champions throughout your organization

Progress happens more quickly with support by motivated individuals who value and prioritize climate adaptation work. It is important to build relationships and educate champions.



In 2019, Austin Water established a new staff position, Climate Protection Consultant, to place additional utility-wide focus on climate issues. This person enhances information sharing, works to incorporate climate concerns into cross-functional utility planning efforts, and represents Austin Water on city-wide climate planning initiatives.



ENGAGE



Seek out and support climate champions throughout your organization

Progress happens more quickly with support by motivated individuals who value and prioritize climate adaptation work. It is important to build relationships and educate champions.



 **City of Austin - JOB DESCRIPTION** 

Climate Protection Consultant

FLSA:	Standard/Exempt	EEO Category:	(20) Professionals
Class Code:	10124	Salary Grade:	IE8
Approved:		Last Revised:	August 28, 2019

Purpose:
Under general direction, this position researches, develops, and implements departmental climate protection programs and provides oversight of departmental climate protection policies, operational directives, and procedures.

Duties, Functions and Responsibilities:
Essential duties and functions, pursuant to the Americans with Disabilities Act, may include the following. Other related duties may be assigned.

1. Provides leadership for departmental climate programs across divisions and works in coordination with other departments to develop, implement, and evaluate plans or procedures that promote climate protection awareness and initiatives.
2. Analyzes climate-related research findings to identify departmental threats and challenges from climate change and proactively develops ways to



Include equity from the beginning

Effective solutions to climate change challenges depend on many factors, all of which might not be clear at the onset. Engaging and focusing on the needs of communities, particularly those most vulnerable to disruptions caused by climate impacts, is best done at the beginning and throughout a project. By improving conditions for the most vulnerable in your community, you also improve conditions for everyone.

Example: Centering community priorities

Sea level rise, urban flooding, and increasingly severe heat island effects disproportionately impact lower income neighborhoods. In Seattle, one neighborhood in particular is comprised of Seattle's lowest-lying lands and faces severe health and environmental injustices, plus increasing pressure of gentrification. **Seattle Public Utilities (SPU)** is leveraging substantial drainage and wastewater investments in this neighborhood to spur neighborhood capacity building, SLR adaptation planning and multi-benefit projects.

This work is resulting in a Resilience District, framing SLR adaptation as an anti-displacement strategy, driving economic opportunity and affordable housing in concert with water quality and flood mitigation measures. The Resilience District will build on city policies and programs and will also establish a community-led entity so that the community can meaningfully participate in and benefit from public projects. Building strong partnerships with community and philanthropy that can come together to build momentum around each other's investments is essential. So, too, is the community's capacity to order and effectively voice their priorities, since basic needs (affordable housing, anti-displacement measures) may need to be met before they can effectively turn to investing in longer-term climate related adaptation.

SPU is also centering community priorities in its integrated system plan, [Shape Our Water](#), by striving to create a shared vision with Seattle communities and stakeholders. This process will guide SPU's investments in resilient drainage and wastewater systems for the next 50 years. The plan is driven by environmental stewardship, environmental justice, regulatory compliance, affordability, equity, science and data, collaboration and empowerment. The [community engagement process](#) is using innovative practices such as public art, fireside chats, and community partners and stories, hear from those who have not previously had a fair opportunity to shape drainage and wastewater decisions.

Example: Strategic planning

The **Portland Water Bureau (PWB)** embedded equity in every part of its recent five-year strategic planning process, with the goal of creating a plan that reduces systemic inequality and its impacts on employees and the people PWB serves. The utility collected equity-specific risks, scored risk consequences based on equity, identified strategies that would lead to equitable outcomes, and redefined its commitment to equity.

After a couple climate change strategies in the plan were identified as having a larger equity impact, an equity working group within the utility reviewed them and recommended equity-specific actions, which are also documented in the utility's Plan to Advance Equity, Diversity, and Inclusion. For example, because low-income and marginalized communities of color are often most vulnerable to the impacts of climate change, reducing carbon emissions is an important strategy that contributes to racial equity and the PWB's role in mitigating climate change has important equity implications. PWB also has an Equity Manager that leads equity work within the agency and an Equity Committee that advised throughout the strategic plan development process.

- [Portland Water Bureau Strategic Plan](#)

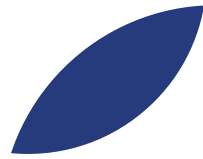
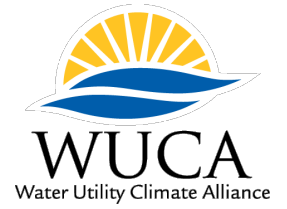
See more:
wucaonline.org

Additional resources

Become familiar and stay centered around the [US Water Alliance's Pillars of Water Equity framework](#) and what the framework means for your utility's planning and operations.

The [Center for Community Investment](#) provides useful resources. While they are not utility-specific, the paper "Community Investments: Focusing on the System" is particularly relevant to utilities.

Fill in your activities and track your progress.



Climate Adaptation Actions



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**CEO
WATER
MANDATE**



**WORLD
RESOURCES
INSTITUTE**



Water Resilience Assessment Framework

ASAP's Adaptation Co-Creation Webinar Series

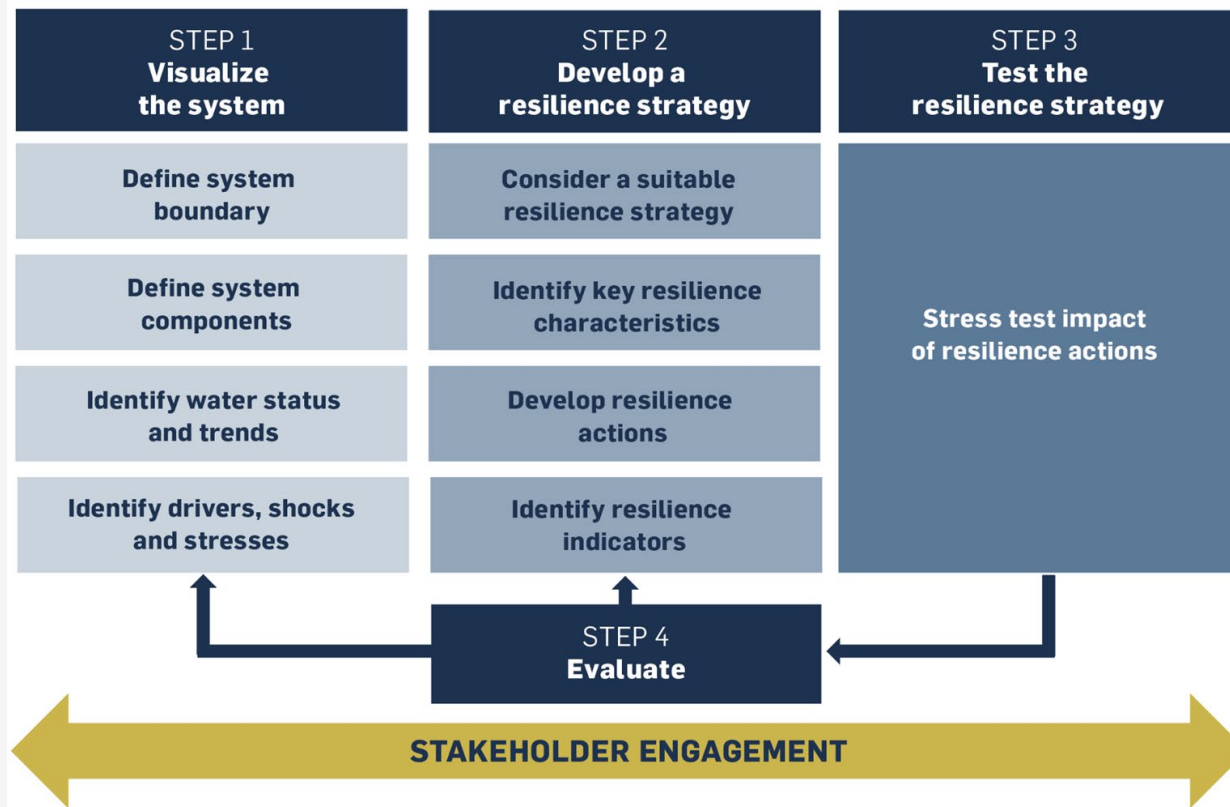
November 1, 2021

Why water resilience?

- Climate change, population growth, other anthropogenic impacts and extreme events can bring dynamic changes to the system.
- Shocks and stresses can change the system either gradually, abruptly, or unpredictably.
- Water utilities need to think now about how to build resilience to future shocks and stresses.

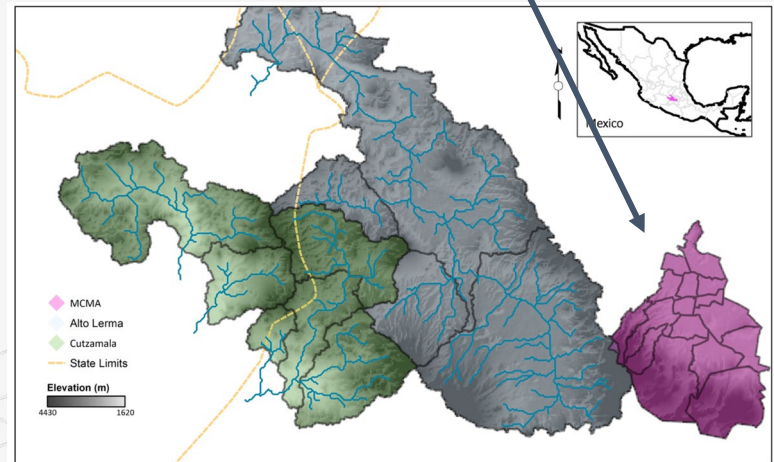
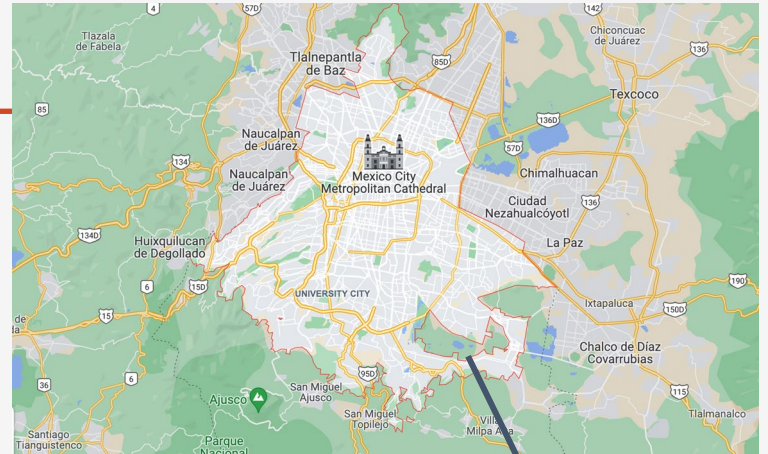
The Water Resilience Assessment Framework (WRAF) informs resilient decision-making to avoid shocks and stresses from becoming crises.

The Water Resilience Assessment Framework



Define the system

- The water system can transcend basins.
- Water resources can be “hidden” in other systems, such as energy, transport, and telecommunications.
- The system boundary can change over time.



Shocks, stresses, and system changes

Short-term disruptions

No major shift in mean conditions relative to the past



Gradual long-term disruption

Often gradual changes in mean conditions, such as increasing or decreasing annual precipitation or sea-level rise



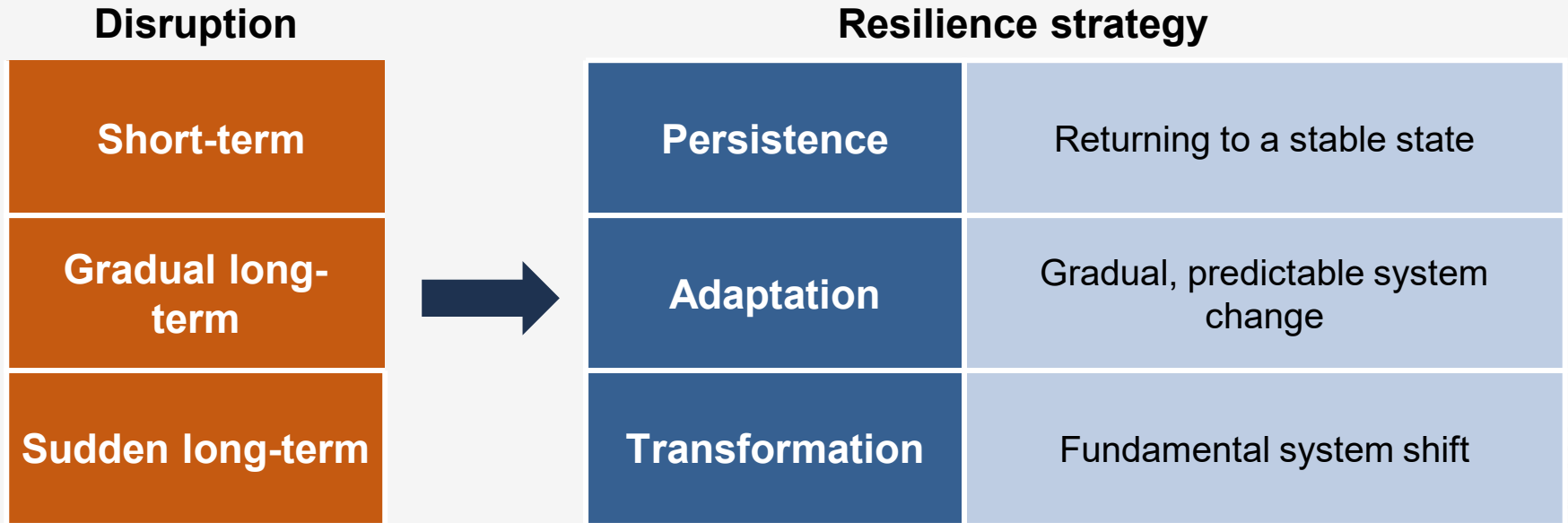
Sudden long-term disruptions

More radical change that can lead to major adjustments in a system



Selecting a resilience strategy

Assessing your system allows you to select the appropriate resilience strategy.



Operationalizing the resilience strategy



Strategy	Characteristics	Actions	Indicators
How do you respond to system changes?	What elements need to be prioritized?	What interventions can be implemented by the stakeholder?	How can we assess the degree of success for a chosen set of actions?

Test and evaluate

Stress test:

Determine the relative impact and utility of resilience actions under a range of plausible future scenarios

Evaluate:

Revisit and refine previous steps based on the result of the stress test

Additional evaluation (beyond the WRAF):

After implementing actions, monitor impact of actions and evolving external conditions and stressors, and possibly revisit the WRAF at a future time



**CEO
WATER
MANDATE**



**WORLD
RESOURCES
INSTITUTE**



Contact us to get involved!

Project website

*[https://ceowatermandate.org/
resilience-assessment-framework/](https://ceowatermandate.org/resilience-assessment-framework/)*

Kari Davis

kari.davis@alliance4water.org

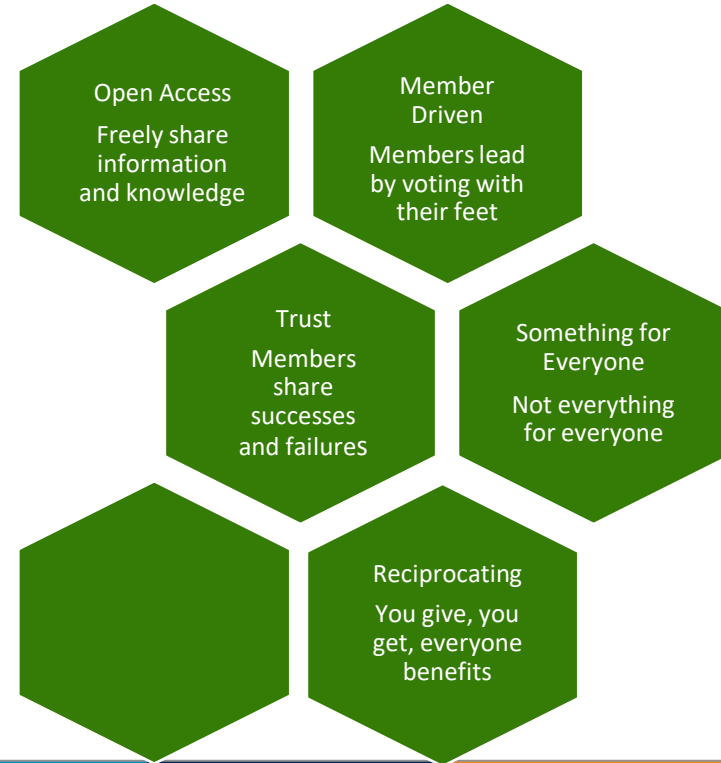


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Adaptation Co-Creation Series

Speaker Transition

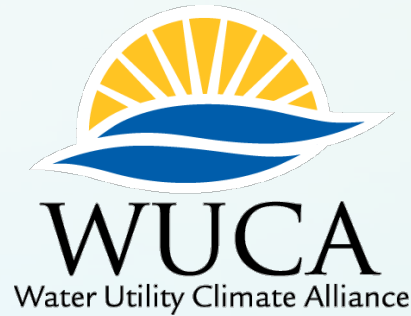
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ASAP PRESENTATION ON

Leading Practices in Climate Change Adaptation Part II

NOVEMBER 1, 2021
(VIRTUAL)



Laurina Kaatz, *Project Lead*, Denver Water, WUCA Past Chair
Kavita Heyn, *Portland Water Bureau, WUCA Chair*
Julie Vano, *Research Lead, Aspen Global Change Institute*

Alan Cohn, New York City Dept of Env. Protection, WUCA Vice Chair
Heather Dalrymple and Marisa Flores-Gonzalez, Austin Water
Mohammed Mahmoud, Central Arizona Project
Jennifer McCarthy, Metropolitan Water District of Southern California
Abby Sullivan and Julia Rockwell, Philadelphia Water Department
Seevani Bista and Goldamer Herbon, San Diego County Water Authority
David Behar, San Francisco Public Utilities Commission
Danielle Purnell and Ann Grodnik-Nagle, Seattle Public Utilities
Keely Brooks, Southern Nevada Water Authority
Tirusew Asefa, Tampa Bay Water

CLIMATE ADAPTATION ACTION AREAS

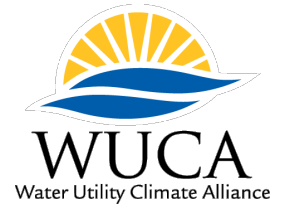


ENGAGE

Motivating action, engaging stakeholders, supporting others, and developing climate messages



ENGAGE



Include equity from the beginning

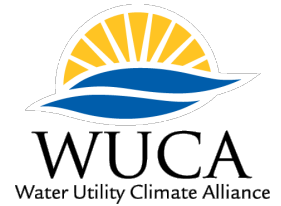
Engaging and focusing on the needs of communities, particularly those most vulnerable to disruptions caused by climate impacts, is best done at the beginning and throughout a project. This benefits everyone.



Embedded equity in every part of recent 5-year Strategic Planning process, including climate change actions. Redefined organizational commitment to equity.

PWB Plan to Advance Equity, Diversity and Inclusion includes actions to mitigate extreme heat and wildfire smoke impacts to our outdoor workers (BIPOC employees may be more vulnerable due to historical health, economic, social disparities).

ENGAGE



Include equity from the beginning

Engaging and focusing on the needs of communities, particularly those most vulnerable to disruptions caused by climate impacts, is best done at the beginning and throughout a project. This benefits everyone.



Equity Manager and Equity Team who collaborate with Climate Resiliency Manager and climate staff in organization.

PWB goal to reduce carbon emissions 50% by 2030 is an important strategy that contributes to racial equity.

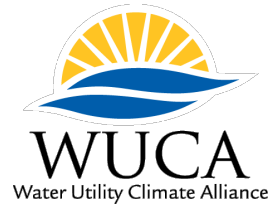
PWB considers affordability and rate impacts to low-income customers from large infrastructure investments.



UNDERSTAND

Understanding climate science, your system, and your system's vulnerabilities, risks and opportunities

UNDERSTAND



Foster sustained relationships with the climate science community

Climate science continues to advance providing new data, tools, and knowledge. Long-term relationships can help navigate what is new and relevant, and what climate questions are important.



A student program that allows continuous connections with the university community and supports the growth of a workforce savvy in both utility needs and applied climate change science.



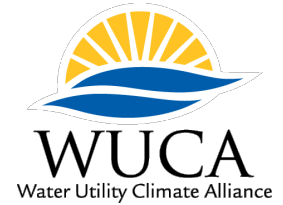
Tirusew Asefa and students David Gold and David Gorelick

PLAN

Building capacity
and planning for
multiple futures



PLAN



Leverage the power of well-placed climate change screening question

Climate adaptation happens when there is increased awareness that future conditions will be different. While it is not clear how big changes will be, a lot can be accomplished just by asking managers to evaluate new vulnerabilities to understand the implications of an uncertain future.

ONESF
Building Our Future

CAPITAL PLANNING PROGRAM

Guidance for Incorporating Sea Level Rise into Capital Planning in San Francisco
Sea Level Rise Checklist (Version 2.0)

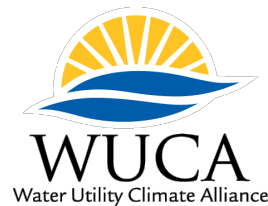
SECTION 4 – Capital Planning Committee

This section is for City Engineer and Capital Planning Committee or Designee completion only.

This project is certified as consistent with the CCSF Sea Level Rise Guidance and

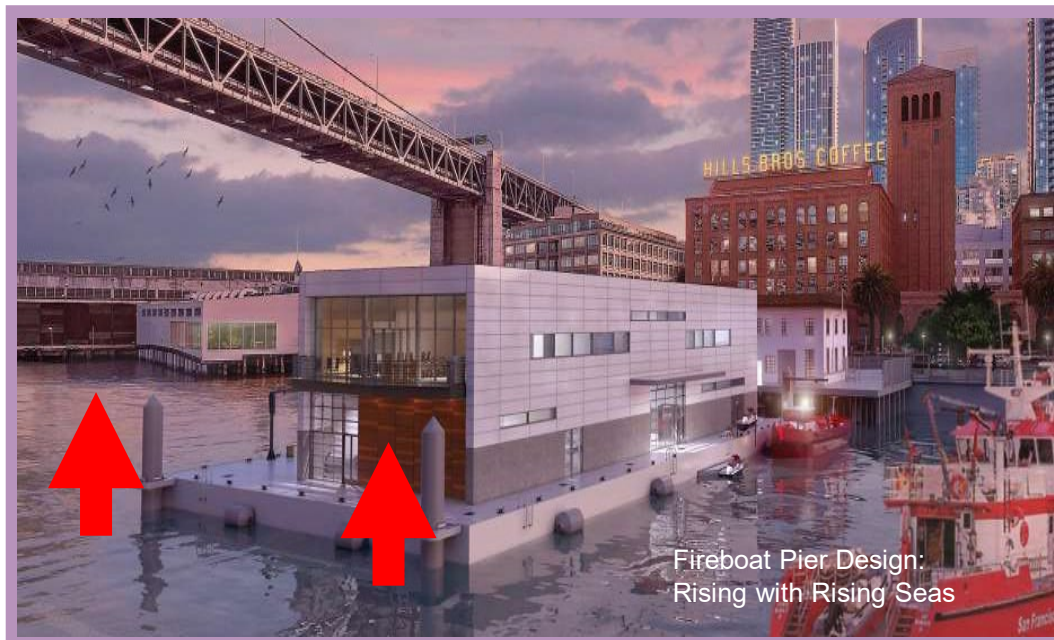
- will not be exposed to expected SLR and related flooding impacts during its functional lifespan
- is exposed but is not vulnerable due to low sensitivity or high adaptive capacity
- is exposed, is vulnerable, but includes sufficient adaptation planning for SLR
- will require additional adaptation planning

PLAN

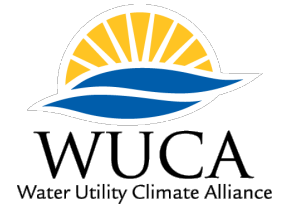


Leverage the power of well-placed climate change screening question

Climate adaptation happens when there is increased awareness that future conditions will be different. While it is not clear how big changes will be, a lot can be accomplished just by asking managers to evaluate new vulnerabilities to understand the implications of an uncertain future.



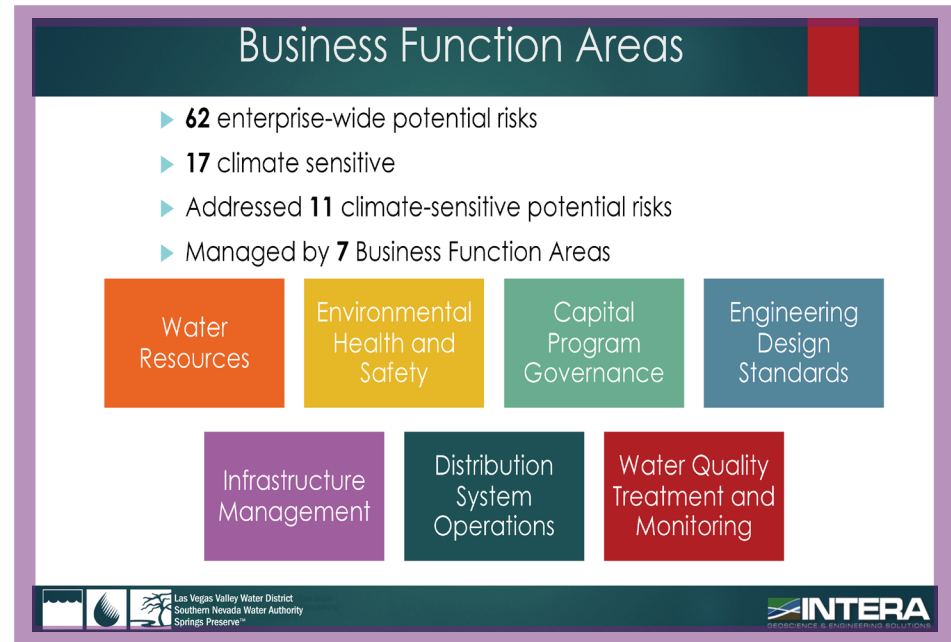
PLAN



Take on climate change as another component of risk management

While climate change adds new elements, utilities already have many tools for managing uncertainty and risks that can be leveraged.

Southern Nevada Water Authority conducted an enterprise-wide risk assessment. **What are your existing risks? How might they change with climate change (e.g., increasing frequency of failure)?**



IMPLEMENT

Acting to implement changes
in assets and actions

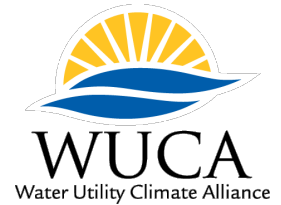


IMPLEMENT

Enact changes in facilities plans, designs, and operations

Strategies to enact change range widely: from diversifying water supply sources to expanding local surface water reservoir storage to modifying pumping station designs.

A WUCA effort to identify facility and infrastructure-based adaptation strategies that incorporate climate information.



Engineering Case Studies supporting peer-to-peer learning



Water Utility Climate Alliance



<https://www.wucaonline.org/adaptation-in-practice/engineering-case-studies/>

- Engineering Case Studies -



 **Seattle Public Utilities**


City & County of San Francisco


Southern Nevada Water Authority

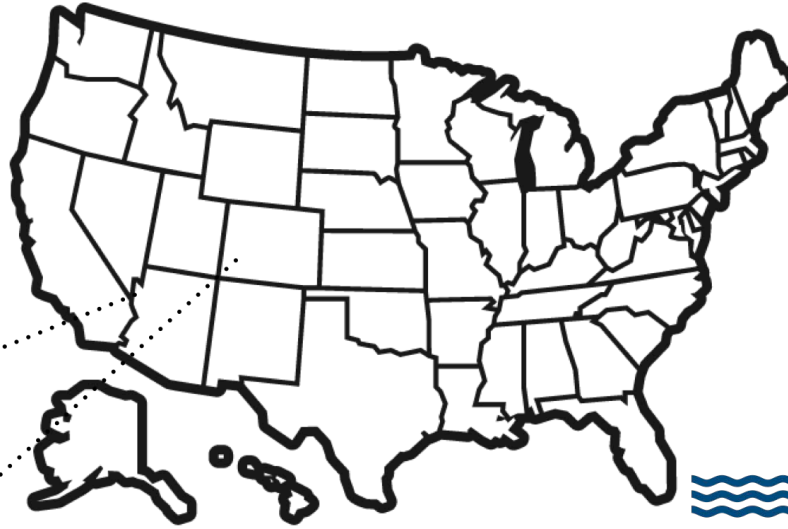
 **State of Colorado**

 **Tarrant Regional Water District, TX**


Miami-Dade, FL

 **Copenhagen, Denmark**


NY Department of Environmental Protection

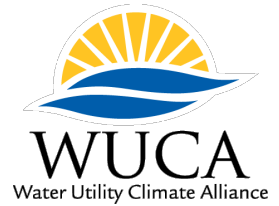




SUSTAIN

Monitoring conditions,
developing funding,
maintaining capacity,
and managing expectations

SUSTAIN



Establish a community of practice to integrate climate change

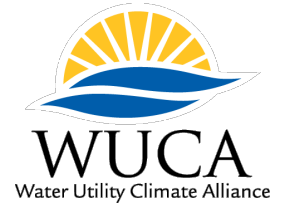
A community can provide a supportive forum for instigating ideas, defining focus, sharing knowledge, and communally advancing and celebrating progress.



For greater clarity and cohesion in its climate work, SPU established a community of practice that meets quarterly to share broadly about climate-related information, impacts, initiatives, concerns, and innovations.



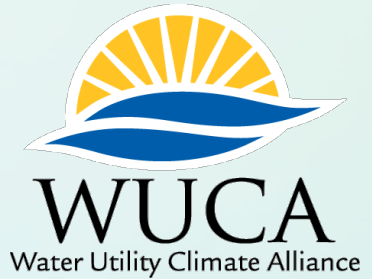
Valuable Lessons



- Champions are integral!
- We are all struggling with mainstreaming, but it is important
- Adaptation is iterative
- Science will never be perfect – get going now!
- Process often more important than resulting plan



Leading Practices in Climate Adaptation



Released in July 2021

Ideas, comments, questions?

Please email:

Laurina Kaatz, laurina.kaatz@denverwater.org

Julie Vano, jvano@agci.org

Kavita Heyn, kavita.heyne@portlandoregon.gov

wucaonline.org



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Reflection & Discussion

WWW.ADAPTATIONPROFESSIONALS.ORG



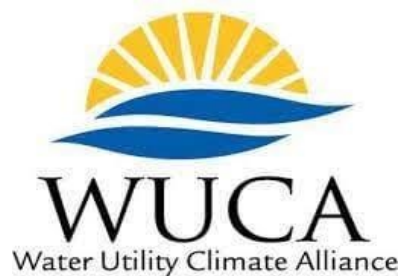
Thank you to our experts!

Kavita Heyn, Climate Resiliency Planning Manager at Portland Water Bureau, Chair of the Water Utility Climate Alliance

Julie Vano, Research Director, Aspen Global Change Institute

Emily Wasley, Practice Leader, WSP's Sustainability, Energy and Climate Change team and President of ASAP's Board of Directors

Kari Davis, Technical Director, Alliance for Global Water Adaptation



Get Involved!

Interested in presenting in a future
Co-Creation Webinar Session?

Contact Beth Gibbons at
Bgibbons@adaptpros.org

Or share your project:

<https://forms.gle/d73avFjsDfmaPdxc7>

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*2022 Member Led Interest Group
Selection
Now Ongoing*

*Comments on Federal Agency
Adaptation Plans
Now Open*

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[www.adaptationprofessionals.org/
/adaptation-co-creation-series/](http://www.adaptationprofessionals.org/adaptation-co-creation-series/)

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