BUILDING A COMMUNITY OF PRACTICE AT THE INTERSECTION OF WATER, CLIMATE RESILIENCE, AND EQUITY:

Insights and Opportunities from an Assessment of The Kresge Foundation's Climate Resilient and Equitable Water Systems (CREWS) Initiative

Prepared by Meridian Institute for American Rivers

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ABOUT THIS REPORT

Meridian Institute developed this report under a contract with American Rivers supported by grant funding from The Kresge Foundation's Climate Resilient and Equitable Water Systems (CREWS) initiative. Brad Spangler and Isabella Soparkar of Meridian Institute executed the assessment and co-authored this report. The Meridian team independently compiled and synthesized the findings presented using the methods described in the body of the report.

American Rivers (www.americanrivers.org) is a 501(c)(3) organization that protects wild rivers, restores damaged rivers, and conserves clean water for people and nature. Founded in 1973 to protect rivers through the National Wild and Scenic Rivers Act, American Rivers has grown to work on many different water challenges, recognizing that protecting rivers happens in cities, on farms, as well as on rivers themselves. We combine national advocacy with field work in key river basins to deliver the greatest impact. We are practical problem solvers with positions informed by science, and we focus on building partnerships and working closely with local partners to forge win-win solutions.

Meridian Institute (www.merid.org) is a 501(c)(3) organization that helps people solve complex and controversial problems, make informed decisions, and implement solutions that improve lives, the economy, and the environment. We design and manage collaboration, providing services such as facilitation, mediation, convening power, and strategic planning. Drawing from over two decades of experience, we help people develop and implement solutions across a wide range of issue areas, including climate change and energy, agriculture and food systems, oceans and freshwater, forests, and health. As a neutral third-party, we bring people together to listen to one another, build trusted working relationships, and forge consensus.

ACKNOWLEDGMENTS

The Meridian team would like to thank Gary Belan of American Rivers for selecting us to take on this fascinating, important project and providing helpful feedback throughout the process. We offer special thanks to Dr. Jalonne L. White-Newsome and Lois DeBacker of The Kresge Foundation Environment Program for their partnership and guidance in the conception and development of the CREWS assessment and the resulting report. We also very much appreciate the contributions of the other Kresge staff who reviewed and provided feedback on the draft products including Jessica Boehland, Shamar Bibbins, and Annelise Huber of the Environment Program; and Hugh McDiarmid, Mark Whitney, and Alejandro Herrera of the Communications Team. Most importantly, we are extremely grateful for the responsiveness and thoughtful contributions of the CREWS grantees and other experts whom we interviewed and who contributed the information, insights, and ideas that formed the basis of this report.

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– Wangari Maathai

INTRODUCTION

A complicated constellation of inequitable decisions, policies, and investment over many decades has left countless low-income communities and communities of color in cities across the United States highly vulnerable to the impacts of extreme rainfall and urban flooding. Climate change promises to exacerbate the existing risk as the number and magnitude of the heaviest precipitation events are projected to increase everywhere in the United States.[1] Discriminatory housing policies and historical underinvestment in water infrastructure in poor communities, among other forms of institutional racism, have driven a disproportionate number of low-income people into marginal, flood-prone areas with dilapidated, deficient water infrastructure.[2] In many communities, the stormwater and wastewater infrastructure is not adequate to protect people and property from routine rainfall events, and extreme rainfall events driven by climate change pose an even greater threat. As a result, low-income communities and communities of color are often hit "first and worst" by climate-related flooding impacts, while also being the least equipped to mitigate or recover from the damage.

Image courtesy of Shutterstock

The complex intersection of water, climate resilience, and equity issues is generally not well understood. However, awareness of and attention to myriad challenges at this intersection are increasing. The public drinking-water crisis in Flint, Michigan shined light on the intersection of water, poverty, and race and created an entry point to turn attention toward a wider range of water justice issues. Extreme rainfall events—such as the 500-year storm that hit Detroit in August 2014 or Hurricane Harvey, which hit Houston in August 2017—have exposed economic and racial disparities associated with the impacts of urban flooding specifically.[3] Today a growing community of water professionals, environmental advocates, water utility managers, community leaders, affected citizens, and policymakers are working at and across different scales to unravel and find solutions to this multi-layered problem.

Urban flooding can be caused by very heavy precipitation in a short span of time. Urbanization creates large areas of impervious surfaces (e.g., roads, pavement, parking lots, and buildings) that increase immediate runoff. Heavy downpours can exceed the capacity of storm drains and cause urban flooding.

Flash floods and urban flooding are directly linked to heavy precipitation. The number of flooding events is expected to rise as a result of increases in heavy precipitation events driven by climate change.[4]

American Rivers has approached the problem of urban flooding by developing a systems approach to water management that centers on integrating the three water management sectors—stormwater, wastewater, and drinking water—to create a more holistic and resilient approach to addressing water management challenges. This approach aims to mitigate the disruptions climate change and the built environment cause to how water flows and the corresponding impacts on rivers, streams, and adjacent communities. Reports from American Rivers such as *Naturally Stronger* (2017), *The City, Upstream and Down* (2016) and *Natural Security* (2009) help to build

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the case for integrated water management. However, the organization recognizes that the work of creating a more resilient, natural, and equitable water management system in the face of a problem as daunting as climate change cannot be done in a vacuum.

Collaborating with and supporting other practitioners in the water and climate arena is the only way to achieve real change. The Kresge Foundation (Kresge) has been a key partner in this regard, providing grant funding to American Rivers since 2009 to support the development and promotion of integrated water management in the United States. Since the winter of 2017, Kresge has also funded American Rivers to help support the foundation's Climate Resilient and Equitable Water Systems (CREWS) initiative by convening leaders active at the intersection of water management, climate change, and equity issues and fostering cross-organizational strategy, synergy, and partnership. As part of that work, American Rivers, in consultation with Kresge, contracted Meridian Institute to conduct an assessment of the CREWS initiative. The goals of the assessment included:

- Describing the challenges, needs, and opportunities facing thought leaders and organizations like American Rivers and other practitioners working at the intersection of water, climate resilience, and equity;
- Characterizing how CREWS grantees have addressed equity through the evolution of The Kresge Foundation's water program;
- Outlining practical next steps to advance the development of a community of practice; and
- Assembling the knowledge generated to date by Kresge water grantees and presenting it in a manner that may inform and bolster the efforts of organizations tackling challenges at the intersection of water, climate resilience, and equity.

This report presents the findings of the assessment conducted by Meridian Institute and aims to tell the story of The Kresge Foundation's CREWS initiative to date. The information presented here will inform the role American Rivers plays within the water and climate change arena and serve as a touchstone to foster deeper collaboration and peer-to-peer learning among CREWS grantees as well as across the broad spectrum of practitioners working at the intersection of water, climate resilience, and equity. Furthermore, this assessment will support American Rivers's analysis and assessment of the organization's efforts to advance more natural, resilient, and equitable water infrastructure within a changing climate, particularly as the organization undergoes its current 5-year strategic planning process. Hopefully, it will also spark interest and ideas among other funders regarding how they can support complementary work or contribute to advancing the emerging community of practice tackling the complex challenges around water, climate resilience, and equity.

OVERVIEW OF ASSESSMENT METHODS

This assessment was designed to gain an understanding of the types of organizations and range of projects The Kresge Foundation is funding through the CREWS initiative, as well as to gather insights and ideas about how to strengthen the ongoing and future work of American Rivers and other practitioners. The Meridian team used both quantitative and qualitative methods to analyze a wealth of data and information about Kresge's CREWS grantmaking and generate the findings, observations, and suggestions synthesized in this report. Source material included written grant materials, grantee interviews, external expert interviews, past-meeting notes, past-grantee surveys, key background readings, and consultations with the CREWS senior program officer.

Methods Summary

The findings presented in this report are based on analysis of written grant materials (e.g., grant proposals, program officer grant summaries, and grant reports) and perspectives shared by Kresge Foundation grantees through phone interviews. The findings were also informed by phone interviews conducted with external (i.e., non-grantee) experts working in the fields of water, climate change, and/or equity. The Meridian team extracted relevant data from written grantee materials into a coding rubric and ran quantitative analyses on that data. Meridian conducted qualitative analysis on interview results. This report represents a comprehensive synthesis of the results of this suite of research.

Analysis of Written Grantee Projects

The Meridian team assessed the substantive and geographic foci of grantee projects through analysis of written materials and phone interviews with grantees. The Kresge Foundation provided the Meridian team with materials for 21 water grantees, including proposals, program officer grant summaries, interim and final grant reports, and submitted products. Kresge initiated strategic grantmaking on CREWS-related issues in March 2016, before formally launching the initiative in March 2017. Because of their substantive focus, all water-oriented grants from March 2016 onward were included in Meridian's assessment of the CREWS initiative. Some of these received funding from Kresge both before and after Kresge operationalized the CREWS strategy.

The Meridian team reviewed written materials and used a coding rubric created in Microsoft Excel to capture data on a range of variables aimed at characterizing CREWS projects. Variables included grant amount, geographic location of the work conducted, partners and collaborators, issue area of work, and project tactics. This data was used to analyze the scope of grantee work, relationships between the recorded variables, and the evolution of grantees funded both before and after implementation of the CREWS strategy. (A full list of variables assessed can be found in Appendix A.)

The Meridian team also conducted interviews with representatives from all 21 CREWS grantee organizations to expand its understanding of grantees' foci, tactics, and accomplishments, as well as lessons learned to date. (See Appendix C for a full list of CREWS grantees.) These interviews were an opportunity to learn about how grantees understand the relationship between water, climate resilience, and equity in their work. The interviews also served as a vehicle to gather grantees' insights regarding challenges and needs facing this emerging field, as well as potential solutions and opportunities to build the capacity and impact of the emerging community of practice. The Meridian team took detailed notes during the interviews and performed qualitative analysis on the results. The key

findings from these conversations are presented in this report through a combination of synthesis of ideas shared by interviewees (without attribution to individuals) and some interpretation on the part of the Meridian team, based on the collective body of information gathered.

New Orleans family assesses the aftermath of a flooding event in their front yard. Image courtesy of The Trust for Public Land.

External Input

To complement the analysis of CREWS grantee work, the Meridian team interviewed 10 other experts not directly connected to the CREWS initiative, including program officers from two other philanthropic organizations. (See Appendix B for a list of additional interviewees.)

The non-grantee experts came from a variety of backgrounds, including non-governmental organizations (NGOs) and academia, and worked intensively on CREWS-related topics, including water management, climate science, environmental justice, and urban resilience. The experts provided perspectives on the relationships among climate, water, and equity; the needs of practitioners in the field; future project opportunities; and the impact of Kresge's grant-making strategy. The foundation program officers discussed their funding strategies around water, climate, and equity, as related to Kresge's CREWS strategy. The Meridian team took detailed notes during the interviews and drew on the results to inform its qualitative analysis and framing of this report.

Working Definitions

"Climate resilience" and "equity" are two important yet broad and abstract concepts that factor prominently into the CREWS strategy. To conduct meaningful analysis of grantees' work as it related to these concepts, the Meridian team developed working definitions of these terms based on conversations with the Kresge senior program officer. Consistent with The Kresge Foundation Environment Program definition, "climate resilience" is defined in this report as encompassing climate mitigation, climate adaptation, and social cohesion.

In this report, "equity" is defined as being composed of the following three dimensions, as delineated in a September 2014 report from the Urban Sustainability Directors Network (USDN):[5,6]

- Procedural Equity: inclusive and authentic engagement in decision making;
- Distributional Equity: fair distribution of benefits and burdens, prioritizing disadvantaged communities; and
- Structural Equity: institutionalized accountability, recognizing existing power dynamics.

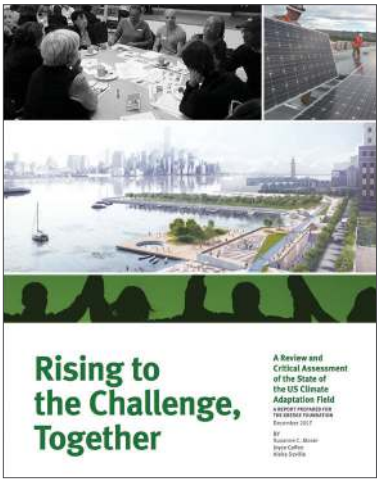
The Meridian team used this working definition to understand which aspects of equity grantees are addressing in their projects. The definition informed both the quantitative and qualitative analyses presented in this report.

*"A comprehensive and integrated approach to **climate resilience** encompasses climate adaptation, climate mitigation, and social cohesion."*

BACKGROUND ON THE ORIGIN OF THE CREWS INITIATIVE

The Kresge Foundation Environment Program has become a philanthropic leader in the field of climate adaptation and resilience in the United States, funding a broad array of projects and sponsoring important contributions aimed at assessing and strengthening the field at large.[7] Recent Kresge-sponsored studies such as *Bounce Forward: Urban Resilience in the Era of Climate Change* (2015), *Climate Adaptation: The State of Practice in U.S. Communities* (2016), and *Rising to the Challenge, Together: A Review and Critical Assessment of the State of the U.S. Climate Adaptation Field* (2017) now serve as key touchstones among practitioners across the country. Kresge's focus on climate adaptation—and on the intersection of water, climate resilience, and equity—evolved and emerged over the course of several years.

In March 2008, The Kresge Foundation embarked on designing a new environmental grantmaking program, building on the premise that the foundation and its board of trustees recognized climate change as the most serious environmental concern of our time. To better understand the needs and opportunities in the broad fields of mitigation and adaptation to climate change, the Environment Program team engaged in various learning opportunities to determine their strategic focus: meeting with peer funders; reviewing reports generated by diverse audiences; meeting with experts from business, academia, nonprofits, and government; and conferring with colleagues within the foundation.



Most of Kresge's early water-related grants (i.e., 2009 to 2013) were categorized in the key area of building the field of climate adaptation. This body of grants largely focused on the effects of climate change on forests and water supply, efforts to identify new financing sources for headwaters conservation, and strengthening the connections between urban water users and rural communities. In addition, during this time period, the Environment Program awarded climate-adaptation, water-related grants in Greater New Orleans, primarily focused on development of Louisiana's coastal master plan.

Attendees at the April 2017 CREWS grantee convening. Image courtesy of The Kresge Foundation.

In March 2014, in response to the foundation as a whole orienting its work around urban opportunity, the Environment Program developed a new strategic framework focused on helping communities build their resilience in the face of climate change. In early 2016, the program team began exploring a new approach to grantmaking at the intersection of water and climate change, with a specific emphasis on the impacts on low-income communities. This strategy development was informed by wide-ranging research undertaken by staff, including the findings of the *Climate Resilient and Equitable Water Systems Capital Scan* undertaken in partnership with Kresge's Social Investment Practice, investment team, and the Kresge senior fellow then working on capital absorption. The scan provided insights concerning promising grants, program-related investments, and market-rate investments the foundation might consider to advance climate-resilient and equitable

Graphic recording of April 2017 CREWS grantee convening notes. Image courtesy of The Kresge Foundation.

water systems.[8] In March 2017, the Environment Program presented a revised framework to its board of trustees, which elevated the importance of equity. The program goal became to help cities implement climate-resilient approaches grounded in equity. The program included a strategy to transform key urban systems critical to climate resilience, focusing on energy and water systems. The CREWS initiative was formally launched subsequent to that approval.

Projects funded through the CREWS initiative clearly reflect an intentional shift toward alignment with the new focus on equity in Kresge's Environment Program grantmaking. Several prior grantees were awarded new grants. Though not all of these grantees were working on equity prior to the strategy change, many were previously involved with integrated water management, water security, and/or green stormwater infrastructure (GSI). In response to the CREWS strategy, these groups made deliberate strides to incorporate equity as a new focus, bringing greater richness to their ongoing work.

In April 2017, American Rivers and The Kresge Foundation convened the first in-person convening of CREWS grantees and other invited experts in Detroit. The forum focused on the exploration and examination of equity as a core framing element for participants' water resource management work as well as the sharing of ideas, lessons learned, and best practices about effective climate resilience and community participation approaches. Two months later, in June 2017, the foundation convened a short meeting in New Orleans, in conjunction with the US Water

CREWS
Climate Resilient & Equitable Water Systems

Transform urban stormwater and wastewater systems so they provide reliable, equitable, and innovative services to communities despite the uncertainties introduced by climate change. Current grantmaking supports three distinct areas of focus:

- Supporting and nurturing a new cadre of water leaders to amplify marginalized voices and strengthen climate-vulnerable regions and water systems;
- Building the case and enabling environment for equitable water system transformation; and
- Advancing non-traditional approaches to financing, operations, and community participation that produce multiple community benefits.

Graphic recording of April 2017 CREWS grantee convening notes. Image courtesy of The Kresge Foundation.

Alliance's One Water Summit. This session focused on building upon and operationalizing key outcomes from the April 2017 gathering, with an emphasis on gaining a better sense of the project foci and approaches of CREWS grantees; identifying issues and needs of common interest on which grantees could collaborate to bolster one another's efforts; and continuing to foster the emerging community of practice.

The April and June 2017 convenings were important milestones for the implementation of the CREWS strategy and set a strong tone of collaboration among CREWS grantees and the other participating experts. They were also a direct precursor of and impetus for the deeper assessment and analysis represented by this report. The findings presented here reinforce and expand on themes from these earlier convenings while also adding an array of practical ideas for the consideration of American Rivers, The Kresge Foundation, and the broader field of practitioners working at the intersection of water, climate resilience, and equity.

Participants in the April 2017 CREWS grantee convening. Image courtesy of The Kresge Foundation.

COMPOSITION OF THE CREWS GRANTEE COHORT

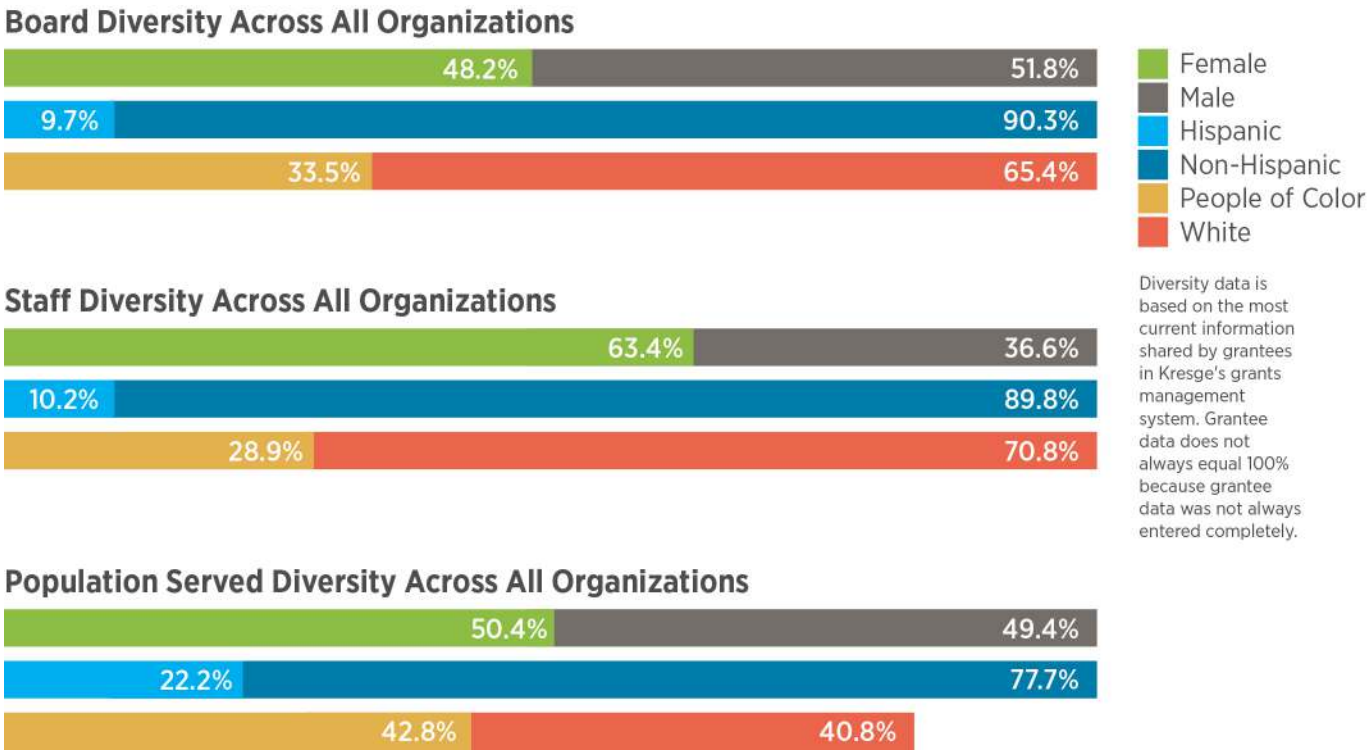
As described previously, The Kresge Foundation made an official decision to focus its water-oriented philanthropy on addressing issues around water, climate resilience, and equity in 2017. In practice, Kresge began making CREWS-oriented grants in the spring of 2016. This section of the report provides a combination of quantitative and qualitative analysis of the composition of the current CREWS grantee cohort (Figure 1).

As of January 2018, the CREWS grantee cohort included 21 grantees. Between March 2016 and December 2017, Kresge awarded $7,649,507 through the CREWS initiative over a total of 26 grants. Grantees in the current cohort are primarily NGOs with national reach, though many partner with or work closely with community-based organizations or other local-level, grassroots partners. In terms of organization size, the current cohort is quite diverse, with annual organizational budgets ranging from $162,000 to $104,601,000. The median organizational budget for grantees is $1,795,676. CREWS grantee organizations are based in cities across the United States, with headquarters distributed across National Climate Assessment Regions as follows: Southeast and Caribbean (7 grantees), Midwest (5 grantees), Southwest (5 grantees), Northwest (2 grantees), and Northeast (2 grantees). Place-based work is occurring primarily in urban areas on the East Coast, in the South, and in the Midwest.

Figure 1

The map below shows the headquarter locations of the CREWS cohort organizations, many of which work in multiple communities or engage regularly with partners across the nation. Visit the CREWS webpage for more details about where these organizations are working to advance equitable solutions to climate-related flood impacts on low-income communities in U.S. cities.

Figure 2



CREWS grantees also differ regarding their board and staff compositions, as well as the populations they serve. Developed based on survey data collected by Kresge, Figure 2 shows that the boards of CREWS grantee organizations are majority white, and staffs are majority white and female. The populations served by CREWS grantees are nearly equally female and male, as well as nearly equally people of color and white.

Note also that Figure 2 depicts an average of all members of grantee boards and staffs, so this data does not depict the full diversity spectrum of CREWS grantees. For example, some staffs of CREWS grantees are made up of mostly people of color while others are almost entirely white. Kresge emphasizes a continuing goal of increased diversity among all CREWS grantee staffs, boards, and populations served, regardless of the starting point for any given organization.

From a substantive perspective, CREWS grantees tend to have deep experience in one or two of the dimensions at the intersection between water, climate resilience, and equity, with the funding from Kresge driving them to integrate new variables into their work. While all grantees are embedded in the fields of either environmental advocacy or social justice, they use a variety of lenses to approach CREWS work. Naturally, grantee organizations typically approach the intersection through the lens(es) with which they are most experienced or comfortable.

Some of the larger organizations take a more traditional, policy-oriented approach to water management issues and have only recently begun integrating climate resilience and/or equity as key considerations. Others are firmly grounded in environmental justice and focused on catalyzing tangible, place-based change regarding water management while working to strengthen the climate-resilience angle. Others have a historical focus on social justice and equity issues outside of environmental challenges, having delved into the intersection of water and climate resilience more recently. Given this diversity of experience and approaches, a key characteristic of the current CREWS grantee cohort is that the constituent organizations are already working together to a substantial degree, with more than half of grantees collaborating with one or more other grantees on current CREWS projects. This has enabled them to share knowledge

and experience as they grapple with how to integrate consideration of all three components of the CREWS strategy in practice. Though the assessment did not reveal any specific drivers of grantee collaboration, it seems that the nascent nature of the intersectional field of water, climate resilience, and equity and the relatively small community of practitioners, combined with the CREWS peer-learning focus, has helped foster meaningful interaction among grantees.

The different backgrounds of CREWS grantees are representative of the challenging but rewarding endeavor of building an intersectional field of practice by merging and expanding multiple existing areas of work. The Meridian team's analysis of CREWS grantee projects included a review of the projects' level of focus on climate resilience and equity. As noted previously, climate resilience encompasses adaptation, mitigation, and social cohesion. Of the grantee projects analyzed, 25 of 26 projects had an adaptation focus; 9 of 26 had a social-cohesion focus; and none had an explicit mitigation focus. In addition, Figures 3 and 4 show that a majority of projects incorporated both equity and climate resilience as main foci. In 71% of projects where equity was a main project focus, climate resilience was also a main focus. However, when climate resilience was a main project focus, equity was also a main focus only 53% of the time.

These findings were derived from text analysis of written materials, which are limited in richness and nuance. Nevertheless, one might interpret the differences in foci here as reflective of the notion that improving equity inherently enhances community resilience, broadly speaking, therefore also enhancing climate resilience. On the other hand, increasing climate resilience does not inherently also enhance equity in a community. It would be ideal to have metrics to measure the extent to which a project is actually building climate resilience or improving equity, rather than just assessing the extent to which those ideas are included as foci of a given project. However, no commonly used or validated metrics for climate resilience currently exist. Monitoring the effect

Figure 3

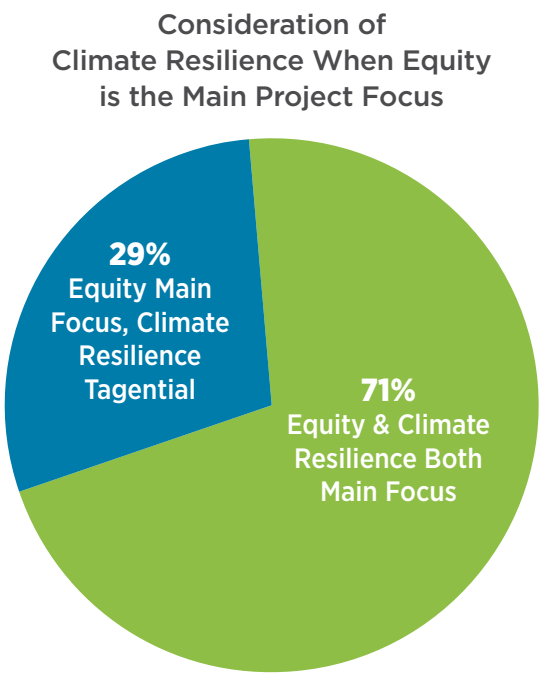
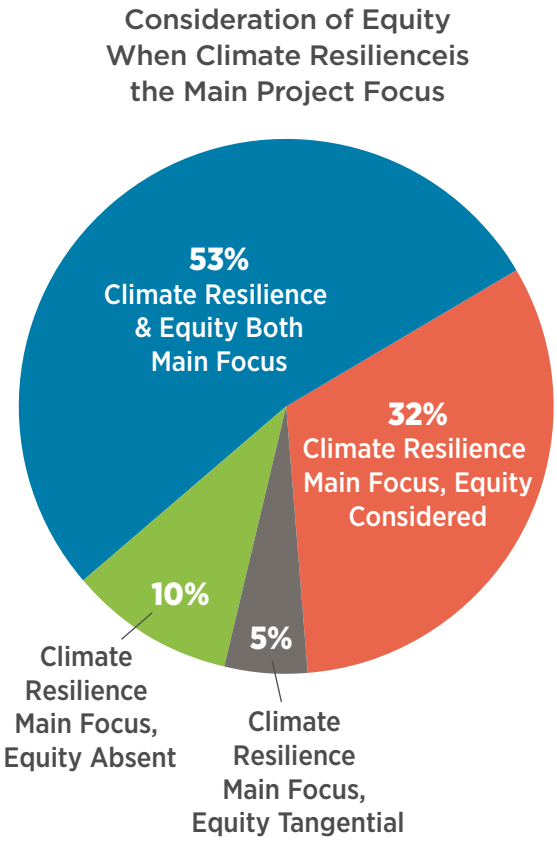


Figure 4



of resilience-building measures is a common step in defined adaptation and resilience assessment processes or toolkits. However, it is typically stated as general guidance, without suggested metrics for measurement.[9] Initiatives such as the Alliance for National and Community Resilience are currently working to develop benchmarks so that communities have access to easily understood and usable metrics for measuring resilience building.[10]

CREWS grantees are addressing a wide range of issues through a variety of activities and tactics, as well as by engaging stakeholders from diverse sectors. Though grantees work on a variety of topics, key issue areas include integrated water management, urban flooding/stormwater, climate resilience, water quality, and water equity/justice. Figure 5 shows how many of the 26 CREWS projects addressed the 5 most commonly addressed issue areas. Note that most projects addressed multiple issue areas.

Additionally, grantees approach their selected issue areas through a variety of activities and tactics, with most projects employing a combination of approaches. The 8 most common activities or tactics are coalition/network building; data collection, analysis, and accessibility; advocacy directed toward the federal government; advocacy directed toward local government; capacity building, focused on technical or scientific knowledge; green infrastructure; collaborative problem solving; and peer learning. Figure 6 shows how many of the 26 projects employed each of the 8 tactics. Note that most projects employed multiple tactics.

In carrying out their work, grantees have engaged predominantly with utilities, community-based organizations, affected residents, municipal governments, and academics. (See Appendix A for full list of issue areas, activities/tactics, and sectors engaged.)

Figure 5

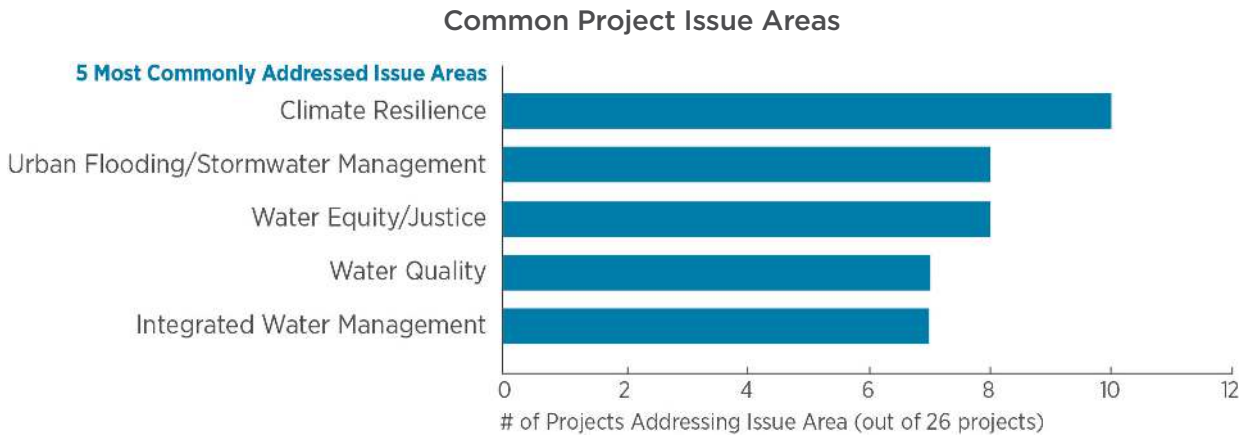
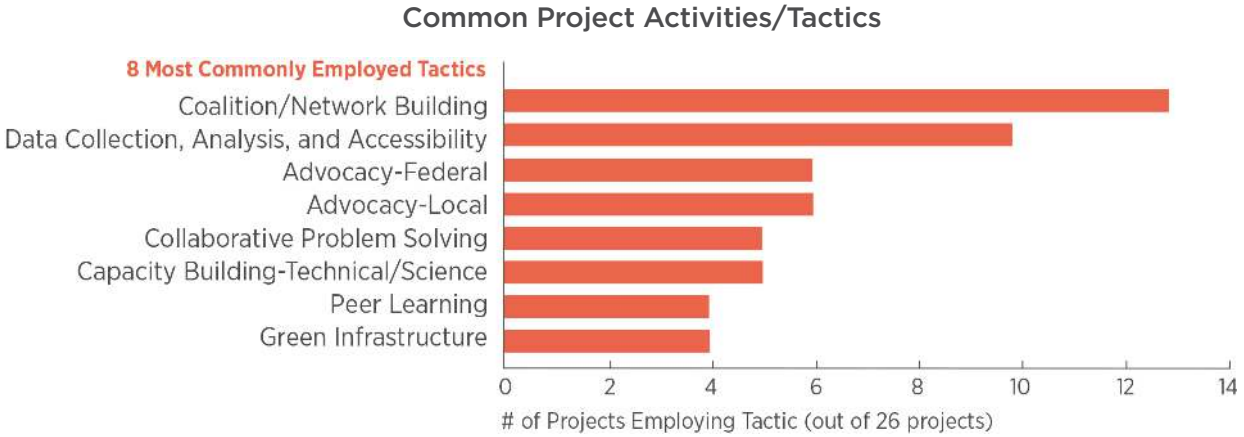


Figure 6



HIGHLIGHTS OF GRANTEE ACHIEVEMENTS TO DATE

This section presents highlights of CREWS grantees' work as of June 2018. It is intended to illustrate the richness of practice occurring at the intersection of water, climate resilience, and equity as well as the breadth and depth of the activity supported through Kresge's CREWS initiative. Please note that the duration of grantee funding at the time that Meridian compiled these highlights ranges from multiple years to several months, with some projects only in their initial stages.

- **American Rivers** has been working in select cities to convene stakeholders in the development of equitable, resilient, and nature-based water strategies. An example of this work is the recent launch of the Atlanta Watershed Learning Network, in collaboration with ECO-Action and other local partners. This is a training for community-based organizations (CBOs) and residents of historically marginalized communities experiencing climate change-related challenges, such as flooding, to learn how to become watershed and community advocates.

Prospective site for a green infrastructure project in Baltimore, Maryland. Image courtesy of Chesapeake Bay Foundation.

- **Anthropocene Alliance**'s Flood Forum USA initiative has built a national grassroots coalition of 25 flood survivor advocacy groups who are demanding action on environmental abuse and climate change. The politically and demographically diverse groups are being matched with scientists, planners, and legal help. Anthropocene Alliance also convenes the group leaders in monthly video-conferences and provides them with flood mitigation training, information, and contacts for both government agencies and NGOs.

- **Carpe Diem West** is building new partnerships with water-justice leaders in the American West and providing additional capacity to those groups. These partnerships include efforts to enact allyship and share lessons learned within the Carpe Diem network. Carpe Diem is highlighting water justice issues through the Healthy Headwaters newsletter, op-eds, and social media.

- **Chesapeake Bay Foundation (CBF)** is working to introduce municipalities across the Chesapeake Bay watershed to a new financing model. This model, called the Environmental Impact Bond (EIB), can be used to help pay for green infrastructure projects to manage stormwater. The EIB engages new sources of capital from private impact investors and allows municipalities to share the risk for new, unproven, or under-resourced projects, protecting public budgets. In 2018, Baltimore, Maryland, signed on as CBF's first municipal partner, with plans to issue a $6.2 million EIB to finance 90 green infrastructure projects across the city.

- **Deep South Center for Environmental Justice** recently convened a meeting of CBOs and faculty from historically black colleges and universities (HBCUs) to discuss the results of a survey asking community members about current flood risks and opportunities for integrated water management. This is part of a broader area of work creating a regional network of CBO and HBCU partners to support community-based research and planning for water utility agencies to address the needs of communities most vulnerable to flood risk and the impacts of climate change.

- **Earth Economics** has been providing support to a number of Kresge grantees, including CBOs in the CREWS network. This support includes economics expertise and training on topics such as ecosystem valuation and cost-benefit analysis. The goal of this work is to help these partners accelerate the planning, analysis, and implementation of green infrastructure and climate resilience projects at the local level. Earth Economics also supports local partners across the country on projects identifying and applying for new large-scale FEMA and HUD funding opportunities for post-disaster investments in green infrastructure. Earth Economics also has been working to expand financing for green infrastructure by having it recognized as an 'asset' in government finance and accounting systems.

Disaster recovery advocates at the Colegio de Abogados de Puerto Rico (Bar Association of Puerto Rico). Image courtesy of Fair Share Housing Center.

- **Fair Share Housing Center** has worked to share its experience with the recovery from Superstorm Sandy to make disaster recovery in other places more equitable and focused on climate resilience. Fair Share Housing Center worked with five federal agencies to adopt the first-ever official civil rights guidance for use of federal funds in disaster recovery; worked with FEMA to provide the most detailed public data ever available on housing and flooding impact from Hurricanes Harvey, Irma, and Maria; created, with the NYU Furman Center, a national mapping platform to overlay FEMA data of impacted communities with risk to lower-income communities; and continues to provide direct assistance to advocates engaging with recovery efforts from those recent disasters in Florida, Puerto Rico, and Texas.

- **Freshwater Future** has utilized existing relationships to bridge connections between national, regional, state, and local community groups, particularly with regard to drinking-water safeguards, affordability, infrastructure investment, and opportunities to build climate resilience. For example, Freshwater Future coordinated a meeting between leaders from local community-based organizations and Congressional Black Caucus members to share concerns about water issues, including recommendations from the Clean Water for All Coalition.

- **Green Infrastructure Leadership Exchange** is a practitioner network that seeks to accelerate implementation of green stormwater infrastructure in communities across North America through peer learning, innovation, partnerships, and advocacy. The network is finalizing a guide for practitioners on how to enhance public-health outcomes of green stormwater infrastructure. The network is also working with Earth Economics to create guidance on the latest and best data available for priority green stormwater infrastructure co-benefits.

- **GreenLatinos** is engaging an existing national network of Latino environmental and conservation advocates to address national and local water issues that significantly affect the health and welfare of the Latino community. This engagement is occurring through partnerships with individual members of GreenLatinos (e.g., GreenLatinos Clean Water Working Group), national partnerships with Latino groups (e.g., Executive Board of the National Hispanic Leadership Agenda) and participation with national water partners (e.g., the Clean Water for All Coalition).

2017 groundbreaking at The Well Farm at Voris Field, an innovative, community-driven 'stormwater farm' demonstration project in Peoria, Illinois. Image courtesy of Greenprint Partners.

- **Greenprint Partners** (formerly known as Fresh Coast Capital) is a green infrastructure delivery partner that helps cities achieve high-impact, community-driven stormwater solutions at scale. Greenprint's public-private partnership model is expected to launch in a Midwest city in 2018. Meanwhile, four private land program contracts totaling $2.6 million have been conditionally approved for 2018 design and construction in a second Midwest city. Greenprint has received both a program-related investment and a grant from The Kresge Foundation.

- **Hip Hop Caucus** is an integral part of the Clean Water for All Coalition, an effort to provide clean and safe water for all communities. The campaign brings people from different backgrounds together to solve common problems. Hip Hop Caucus's environmental justice leaders are sharing their decades of experience by speaking to thousands of people every month about how clean water impacts families and communities.

- **National Wildlife Federation** coordinates the Clean Water for All Coalition, an effort to provide clean and safe water for all communities. A multi-faceted effort, key activities of the coalition include advocacy on federal policy to protect water and public health; advocacy on agricultural runoff policy; and attempts to bring additional voices into the coalition. The coalition is planning "Water Infrastructure 101" webinars to educate and empower diverse groups toward advocacy. Also, the coalition recently hosted a workshop on water affordability in conjunction with the Mayor's Innovation Project, American Rivers, and the University of Pennsylvania's Water Center to convene utilities, elected officials, and community leaders to discuss the water affordability crisis and determine joint paths forward.

- **One Voice**'s Water, Inclusion and Innovation (WII) Project involves assessing the climate adaptation plans for six cities in the southeast to understand how these cities have prioritized water and wastewater infrastructure to manage both financial and environmental needs, particularly as relates to how climate change has affected water pipes, water treatment and storage, and sewer systems in their respective cities. The outcome of the assessment has shown that, while water infrastructure is often listed high among municipal priorities, many of the cities included in this study have failed to include or otherwise address water infrastructure in consideration of their climate adaption or mitigation plans.

Promotional image from the Clean Water for All Coalition. Image courtesy of National Wildlife Federation.

- **Pacific Forest Trust** has expanded the definition of water system infrastructure in California to include source watersheds by developing and sponsoring Assembly Bill 2480. (No foundation funds were used for lobbying.) This opens the door for dedicated financing to restore and conserve the state's degraded watersheds and, in a relatively low-cost manner, improve the overall performance and climate resilience of the state's water system.

- **PolicyLink** and the Gulf Coast Center for Law and Policy convene the national Water Equity and Climate Resilience Caucus. The Caucus brings together frontline organizations and regional and national networks and coalitions working to advance access to safe, affordable water; creates jobs and business opportunities for people of color in resilient water systems; and addresses climate-related sea level rise, flooding and drought. The Caucus addresses these issues through peer learning, coalition building, and policy advocacy.

- **re:focus partners** and The Atlas Marketplace hosted the Procuring Resilience Workshop at The Kresge Foundation on May 30, 2018. The workshop brought together representatives from eight cities from across the United States and a select group of implementing partners to identify and develop innovative infrastructure procurement options for tackling critical legacy water system issues, ranging from lead pipes and children's health to financing maintenance and system-wide upgrades. A final report from this workshop will be released in September 2018.

- **River Network** supports the Urban Waters Learning Network (UWLN) in partnership with Groundwork USA. UWLN is a peer-to-peer network of people and organizations that share practical, on-the-ground experiences in order to improve urban waterways and revitalize the neighborhoods around them. Currently, River Network and Groundwork USA are supporting the second of two peer-learning cohorts with CBOs and their local partners selected from urban areas around the country. The first was focused on flooding, climate, and equity. The second is focusing on safe and affordable drinking water, climate, and equity.

- **The Nature Conservancy** is working with the City of Detroit, the Eastern Market Corporation, and multiple stakeholders across the city to determine the feasibility of creating a special purpose district (SPD) for managing stormwater runoff using green stormwater infrastructure (GSI). The goal of the SPD would be to have a long-term, sustainable, and replicable financing mechanism that ensures that nature and its benefits to the community and environment are incorporated into the built environment. The study will evaluate the efficacy of an administrative entity—which works on behalf of the special purpose district—to site, design, construct, and maintain GSI, while simultaneously offering a fiscal incentive to the property owners within the district.

Girls learn about flooding, weather, and climate at a neighborhood block party in New Orleans. Image courtesy of The Trust for Public Land.

- **The Trust for Public Land** has designed an arts and culture-infused, multiple-benefit green infrastructure pilot program that builds climate resilience and has positive impacts on public health, in three demonstration cities: New Orleans, Louisiana; Philadelphia, Pennsylvania; and Richmond, California.

- **The US Water Alliance**'s Equitable Water Future initiative builds the capacity of a range of stakeholders to advance equitable and resilient water management practices. The initiative includes the Water Equity Taskforce, a cross-sector network of cities working to accelerate the adoption of equitable practices, as well as a national water equity briefing paper, a report on the Great Lakes region, and an online clearinghouse of promising models.

DEFINING THE WATER, CLIMATE RESILIENCE, AND EQUITY INTERSECTION

The CREWS initiative has established parameters and priorities for Kresge's water grantmaking, with an emphasis on transforming urban stormwater and wastewater systems. However, the Meridian team's findings revealed no common definition or theory that neatly captures the range of practice at the intersection of water, climate resilience, and equity. CREWS grantees share a recognition of the existence of disparities in low-income communities and communities of color with regard to adequacy of water infrastructure and services. They also inherently accept that climate change will severely impact the water cycle and be experienced most tangibly by people through changes in precipitation.[11] Yet, while integrating equity with strategies to address the exacerbating effects of climate change on urban flooding is seen as adding value and authenticity to the work, it remains challenging both conceptually and in practice. Generally, grantees discussed their approach to the work by providing practical examples of activities and tactics they are using in their projects.

Resident of the Ninth Ward in New Orleans, Louisiana, and local flood group member, in front of her home. Image courtesy of Anthropocene Alliance.

Among affected residents, the causes and effects of flooding are perceived as inherently and inextricably linked with equity issues.

Equity is a central concern in many projects, and grantees are attempting to tackle a variety of structural and procedural aspects. Interviewees who are either people of color themselves and/or close allies with grassroots leaders and organizations strongly conveyed that inequity is perceived as a fact of life in urban communities of color. Disparities in vulnerability to and damage inflicted by climate-driven impacts of urban flooding represent another unfortunate manifestation of insidious inequity in the United States. Among affected residents, the causes and effects of flooding are perceived as inherently and inextricably linked with equity issues. Similarly, among professional practitioners approaching the work from an environmental justice perspective (e.g., Deep South Center for Environmental Justice, GreenLatinos, One Voice), water issues are seen, first and foremost, through an equity lens. For all grantees, the essence of their work is about identifying, understanding, and confronting disparities associated with the frequency and impact of urban flooding in low-income communities and communities of color, which tend to be hit first and worst. It is also about supporting and amplifying the voices of vulnerable and affected residents who are disadvantaged in terms of capacity to respond to and recover from flooding impacts.

WORKING AT THE INTERSECTION OF WATER, CLIMATE RESILIENCE, AND EQUITY: CHALLENGES, NEEDS, LESSONS LEARNED, AND OPPORTUNITIES TO STRENGTHEN THE FIELD

The community of practice working at the intersection of water, climate resilience, and equity is still nascent, with several CREWS grantees fairly new to the program and all actively grappling with how to integrate all three aspects in practice. The individuals who participated in this assessment are involved in a wide range of relevant issues and exhibited a keen sense of the key challenges and needs in this complex and emergent field. Collectively, they shared an array of lessons learned about effective approaches to overcome key challenges. In addition, the assessment interviews generated important insights about corresponding opportunities to address deficiencies or needs in the current landscape of CREWS-related work.

The purpose of this section of the report is to synthesize and convey the suite of knowledge shared by CREWS grantees for the benefit of current and future grantees and the broader community of practitioners; and highlight opportunities to strengthen the overall depth, breadth, and collective impact of the community of practice tackling challenges at the intersection of water, climate resilience, and equity. The opportunities highlighted in the inset boxes that follow rose to the top through the Meridian team's analysis and interpretation of insights shared during interviews. They are presented here for the consideration of Kresge and other funders interested in bolstering this emerging field. Each highlighted opportunity includes references to current CREWS grantees who are already doing relevant work that could be leveraged to advance progress. (See Appendix C for individual grantee profiles.)

Gutted home in the aftermath of Hurricane Harvey. Image courtesy of Anthropocene Alliance.

Connecting People at All Scales to the Issues

People generally have an innate sense of the necessity of water and its centrality to life itself, as well as its presence as a force of nature. However, with residents in low-income communities and communities of color confronting many daily challenges, flooding problems and climate change do not naturally rise up as a high priority. Additionally, there is a corresponding research gap around flooding and climate impacts on urban communities, which leads to a messaging gap in communities regarding the importance of functional stormwater and wastewater infrastructure. There is also a need to raise awareness among decision makers at the local, state, and federal level about the disparities associated with urban flooding and the related environmental, social, and economic impacts in low-income communities and communities of color.

Assessment interviewees shared the following lessons about effective approaches to connecting people to the issues:

- Link relevant data and information about impacts and potential solutions to immediate, everyday concerns such as employment, public safety, children's health, and quality of life.

- Use the power of storytelling to humanize the issues and convey the real toll urban flooding can have on the lives of ordinary people.
- Connect local water and flooding problems with core civil rights issues or high-profile news stories such as the Flint drinking-water crisis or the Standing Rock pipeline protests to help people understand the link to equity.
- Engage prominent cultural figures at local scales (e.g., clergy, barbers, hair stylists) and national scales (e.g., entertainers, athletes) as messengers, and leverage their influence to catalyze dialogue and engagement among local and national political leaders and decision makers. For example, Hip Hop Caucus works with entertainers and major media outlets to relay stories from local people to national-level decision makers on Capitol Hill.

*"A comprehensive and integrated approach to **equity** encompasses procedural equity, distributional equity, and structural equity."*

Opportunity: Build a National Coalition and Policy Agenda Focused on Urban Flood Mitigation and Climate Change

Multiple CREWS grantees are currently advocating for policy change at various scales to help reduce the likelihood, impacts, and costs of urban flooding in low-income communities and communities of color. While the range of ongoing work is broad, and each effort is important on its own, interviewees indicated that there is a lack of cohesiveness among groups advocating around urban flooding and climate resilience issues. Hence, an opportunity exists to foster collaboration and greater alignment among grassroots and national organizations to build a broad national coalition with a coordinated policy agenda focused on urban flood mitigation and climate resilience.

Ideally, the community of practice at the intersection of water, climate resilience, and equity will eventually develop a shared set of state and federal policy objectives supported by a diverse range of voices. A coordinated national coalition also could work to integrate climate resilience more clearly into the national dialogue on urban flood mitigation and establish stronger channels for relaying local data and stories to national advocates and policymakers.

A number of ongoing CREWS projects represent potential members of or starting points to build such a national coalition. For instance, Anthropocene Alliance has formed Flood Forum USA to help people harmed by flooding from across the United States get organized, heard, and supported.[12] Fair Share Housing Center is working to influence key policies around equitable recovery from natural disasters, extreme storms, and flooding in low-income communities and climate-vulnerable geographies in the United States. One Voice is researching structural and institutional impediments that minimize access of low-wealth communities to sources of federal and state funding for sustainable water infrastructure.

Several CREWS grantees, including the National Wildlife Federation, American Rivers, Hip Hop Caucus, GreenLatinos, Freshwater Future, and PolicyLink, participate in the Clean Water for All Coalition, which is advocating to protect and enhance federal clean water regulations and policy. Additionally, PolicyLink launched the Climate Resilience and Water Equity Caucus in April 2018 to support the development of a national coalition dedicated to ensuring communities that face water vulnerabilities are meaningfully represented in water protection efforts, benefit from climate-resilient water management, and win jobs and contracts associated with GSI implementation.[13]

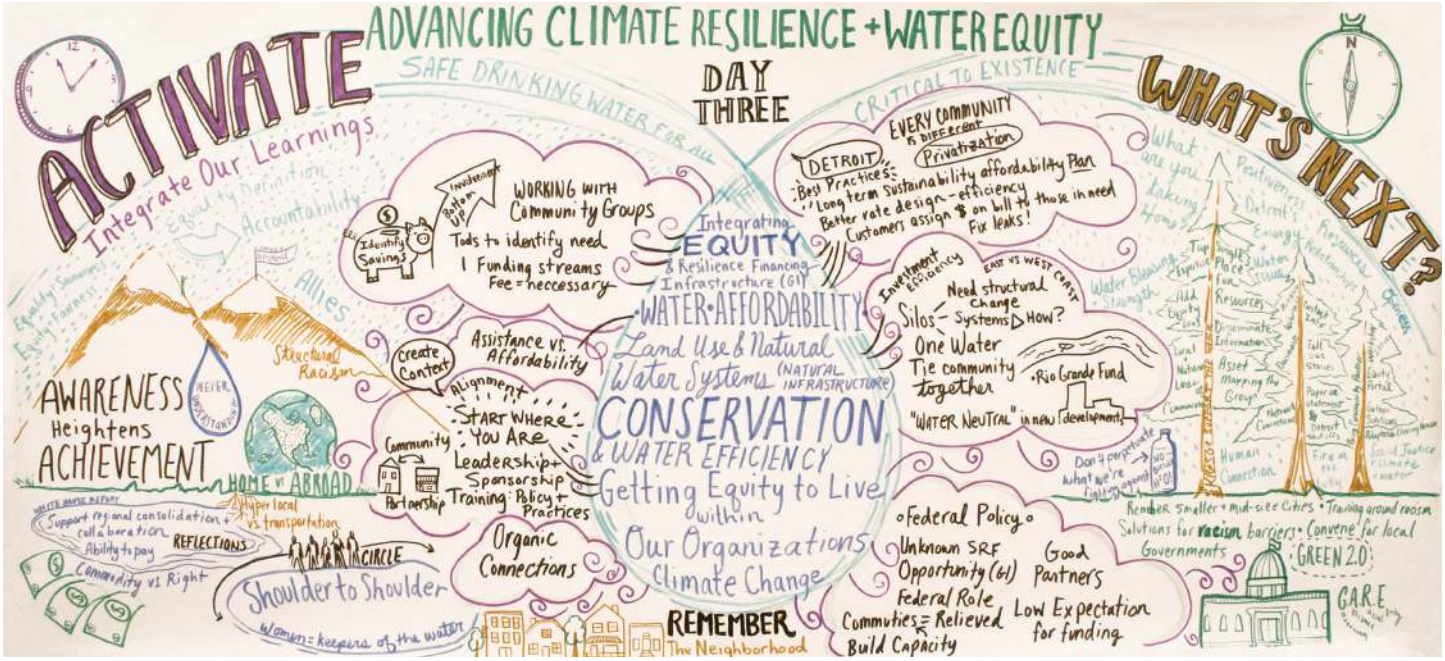
Raising Awareness of and Gaining Buy-In to Solutions

Stakeholders across all scales can also benefit from greater awareness and stronger evidence regarding the potential benefits of innovative solutions and best practices for how to implement them successfully in affected communities. For instance, GSI is clearly a preferred solution to address urban flooding in cities and towns across the United States, with practitioners touting its many community co-benefits, including stormwater management, climate resilience, improved public health, job creation, social cohesion, and enhanced quality of life. The CREWS initiative has rightfully embraced the practice given that it touches on all three dimensions of the intersection.

Yet, there is still a need to evaluate and demonstrate the full spectrum of benefits in more compelling, evidence-driven ways for a variety of audiences. Both community-based and larger, national organizations need access to experts in comparing the triple-bottom-line benefits of green versus grey infrastructure and/or training on decision support tools that can run similarly holistic analyses. Ultimately, advocates need better and more actionable information to gain buy-in for projects from both affected residents and decision makers. Additionally, service organizations, municipalities, and utilities continue to seek innovative financing strategies to fund the implementation of projects in low-income communities.

Assessment interviewees shared the following lessons about effective approaches to raising awareness of and gaining buy-in to solutions:

- Clear articulation of co-benefits is crucial to gaining buy-in from diverse parties on proposed solutions.
- Municipalities do not typically prioritize the potential climate resilience or social benefits of GSI, instead primarily focusing on meeting stormwater management regulations and the potential for increased property value (and corresponding tax revenue).
- Social-cohesion benefits of GSI result from public participation mechanisms such as design charrettes, as well as the creation of new community spaces for people to gather and recreate.
- Practitioners must acknowledge the risks of gentrification and potential displacement of local residents that can accompany GSI projects, and work to mitigate that risk.



Graphic recording of April 2017 CREWS grantee convening notes. Image courtesy of The Kresge Foundation.

Opportunity: Support Further Development of the Economic Case and Policy Environment to Advance Implementation of Green Stormwater Infrastructure

The Kresge Foundation and other funders have an opportunity to support further development of the economic case and policy environment to advance implementation of green stormwater infrastructure as a climate-smart water management practice that also enhances equity. Practitioners and communities across the nation can still benefit from innovative valuation methods, financing models, and other best practices that engender confidence and generate political will to support GSI projects.

The CREWS initiative funds a variety of relevant work that could be continued, leveraged, or expanded to bolster GSI implementation in flood-prone communities across the nation. For example, Earth Economics is developing rigorous, holistic cost-benefit analysis methods that aim to account for environmental, social, and economic benefits of GSI projects, including climate resilience and job creation. Design firm re:focus partners is helping small- and medium-sized cities use new procurement tools to enable the transformation of legacy water infrastructure systems into climate-resilient systems.

Grantees working on innovative project development and financing methods for GSI include Greenprint Partners (formerly known as Fresh Coast Capital), which is offering public-private partnerships to scale GSI on public and private property. The Chesapeake Bay Foundation is exploring how to adapt and apply environmental impact bonds to fund GSI projects in climate-vulnerable, low-income communities.[14] Pacific Forest Trust is helping develop legislation and policy that incorporate watersheds into the legal definition of water infrastructure in California, making natural infrastructure eligible for the same state project financing as built infrastructure.

The Michigan chapter of The Nature Conservancy is developing a feasibility study for a watershed improvement district in Detroit's Eastern Market neighborhood. The study includes important community messaging and co-benefit tracking elements.[15] The Green Infrastructure Leadership Exchange—a peer-learning network for municipal utility managers throughout North America who are responsible for the design, implementation, and management of green stormwater infrastructure systems—is an important venue for disseminating information about innovative approaches, replicable models, and best practices.

Building Trust and Forging Strong Alliances with Affected Communities

For practitioners conducting equity-focused, place-based projects in low-income communities and communities of color, forging strong alliances and partnerships with local leaders and organizations is critical to success. This is especially true for national organizations, as local residents may be wary of the motives behind "outside" interventions. This is the case for many CREWS grantees and can be particularly challenging for organizations comprised primarily of white staff members or when an organization historically has not had a local presence. Additionally, residents affected by urban flooding often possess long-standing distrust of—and may even have hostile relationships with—the local government, stormwater/wastewater utility, and certain NGOs as well. Therefore, it is of utmost importance that practitioners entering communities as intermediaries take a robust and conscientious approach to identifying, engaging, and building trust with leaders of community-based organizations and the community at large. Many can benefit from training in diversity, equity, and inclusion (DEI) as well as culturally sensitive

civic engagement strategies. The same is true for local officials or utility personnel seeking to work constructively with residents to address urban flooding and water justice issues. Outside practitioners must also build strong working relationships with municipal government, utilities, and other relevant influencers and decision makers.

Assessment interviewees shared the following lessons about building trust and forging strong alliances with affected communities:

- The significant time investment and long-term commitment necessary to build trust requires adequate funding and staff capacity, as well as a sufficient period of performance to achieve results. It is important to identify and build relationships with a variety of potential local partners before forming official partnerships. Be personal, not just professional.

- An ongoing physical presence in the community is ideal (e.g., office location, residency). If that is not possible, then practitioners must still be willing to spend substantial time in the community (e.g., travel). For example, The Trust for Public Land is a national organization, but they have local staff presence in all of the cities in which they work, enabling the development of strong relationships with local partners.

- Connect with people and organizations whose strengths complement, rather than overlap with, those of your own organization, and that are ideally already embedded in the community of focus.

- Allow community voices to define the problem, as well as drive priority setting and strategy development.

- Create forums for local people to share stories, concerns, information, or data.

- Engage in active listening. Respond to local needs and interests instead of coming in with preconceived solutions.

- Assist and add value first. Ask for the community's assistance with the project at hand later, especially if working with a national organization.

- Be willing and prepared to use unconventional methods to connect with people, including attending community gatherings and connecting with people in their preferred modes of communication (i.e., e-mail does not always work).

- Experiment with different tactics to find and engage local leaders. For example, the Anthropocene Alliance sometimes arranges meetings via social media in places that are experiencing flooding, and then works to engage people who emerge as natural leaders.

- Practitioners with national organizations should be positioned and prepared to leverage the organization's brand to make a difference for the community.

Participant at the April 2017 CREWS grantee convening. Image courtesy of The Kresge Foundation.

Opportunity: Stimulate Deeper Collaboration Within and With the Water Utility Sector on CREWS-Related Issues

The fact that wastewater and stormwater utilities are often at the center of water, climate resilience, and equity challenges translates into a variety of opportunities to stimulate deeper collaboration among utilities, and between NGOs (especially local groups) and utilities. First, there is an opportunity to create more forums for utility managers and personnel to share information about ongoing initiatives, strategies, and best practices for equitable service delivery. For example, Seattle Public Utilities (SPU) has a multi-pronged program to proactively address racial justice and equity issues across all of its divisions, including innovative analyses of emergency-call-center data paired with customer focus groups to better understand cultural differences in how people communicate with SPU about flooding events.

In July 2017, the National Association for Clean Water Agencies (NACWA) released *Opportunities for Municipal Clean Water Utilities to Advance Environmental Justice & Community Service*, which presents case studies and case summaries from its member utilities describing projects they undertook to better connect with and serve their communities. Model programs and case studies such as these could be useful starting points for in-person convenings focused on sharing innovative utility approaches to equity-oriented work.

In addition, there is an opportunity to expand beyond utility-to-utility peer learning and involve stakeholders with whom utilities must engage on a regular basis. This could include dialogue with grassroots groups concerned with flooding impacts about how to improve relationships between local leaders and utilities, or how to better integrate equity into climate adaptation and resilience planning within water utilities. Another potential topic is how to create mechanisms through which non-utility practitioners or stakeholders can seek advice or technical assistance from staff at utilities that are leading on climate resilience and/or equity.

CREWS grantees, including US Water Alliance through its One Water Summit and other national-scale convenings, and Carpe Diem West through its Healthy Headwaters Leadership Team, are positioned to help foster peer-to-peer learning and collaboration both within the utility sector and between utilities and NGOs working at the intersection of water, climate resilience, and equity.

Building Local Capacity

Local leaders and community-based organizations need to be equipped with knowledge, data, policy information, advocacy skills, and funding so that they are able to react to urgent situations and take longer-term action. Yet, influential leaders in low-income communities often do not have a strong handle on important aspects of the water, climate resilience, and equity intersection, or the capacity and financial resources to organize and mobilize coalitions to affect change. CREWS grantees are involved in delivering a range of educational material and have found that receiving basic education can empower local people to advocate for themselves with more confidence and credibility. Key topics on which grassroots leaders and organizations typically need education include the water cycle, integrated water management, how water systems and utilities operate, the drivers and impacts of climate change, and local planning and decision-making processes. Grantees also provide skills training in civic engagement, advocacy, communications, use of decision support tools, and DEI. Most importantly, however, local leaders and community-based organizations need funding that allows them to build and sustain institutional capacity so that they can serve and advocate for affected residents on an ongoing basis.

Assessment interviewees shared the following lessons about building capacity among local leaders and community-based organizations:

- Educational materials and practical toolkits should be designed in user-friendly formats and written in plain, understandable language.
- Since structural racism and inequity tend to be taken-for-granted in communities of color, training local leaders in DEI concepts and building their understanding of power dynamics can be enlightening and empowering.
- Local leaders can benefit from training in community organizing so that they are better able to keep residents engaged over time.
- A small amount of resources (in various forms) provided to the right local leaders can make a major difference in the community.
- Funding is needed for mundane tasks—such as financial planning and site assessments—that precede the development of more tangible projects.

Opportunity: Support Mechanisms for Reciprocal Capacity Building Between Community-Based and National Organizations

The diversity within the community of practice emerging at the intersection of water, climate resilience, and equity presents an opportunity for reciprocal capacity building between national and community-based organizations to address knowledge and skills gaps. Many CREWS grantees are already involved in this type of work, and this could be leveraged or expanded within the CREWS network and beyond. For example, American Rivers has a wealth of information and guidance material in its Integrated Water Resource Management Center that could serve as the basis for trainings with local groups. American Rivers could also play an important role in brokering new collaborations and creating opportunities for peer learning and capacity building through its support role for the CREWS initiative. The Deep South Center for Environmental Justice, given its capacity-building and civic-engagement work with community-based groups in the Gulf Coast region, or River Network, through the Urban Waters Learning Network, could potentially lead trainings on effective strategies for engaging local leaders, building trust, and being strong allies in new communities. Additionally, there may be opportunities for smaller, community-based organizations and larger, national organizations to co-design training curricula on DEI, civic engagement, water systems, or climate change for optimal effectiveness with different audiences.

Increasing the Emphasis on Climate Resilience

Climate resilience is presented as a primary focus in most CREWS grant proposals and projects. However, in practice, climate resilience is often a backdrop to work that is more firmly focused on immediate, tangible problems at the intersection of water and equity. It is a common characterization in project proposals that a project inherently addresses climate resilience by addressing urban flooding because scientific models project increased frequency

Students learn about green infrastructure at the Amy Northwest Middle School in Philadelphia. Image courtesy of The Trust for Public Land.

Participants engaging in a scenario-planning exercise at a September 2017 climate science training hosted by the Water Utility Climate Alliance. Image courtesy of Brad Spangler.

and intensity of extreme rainfall events, which will exacerbate existing urban flooding problems. Such characterizations are consistent with prevailing scientific projections of future climate change. However, in practice, climate adaptation and resilience tend to be embedded within an array of co-benefits (e.g., of GSI), giving the impression that climate resilience is a presumed outcome rather than a central consideration in the planning process. Several grantees deliver basic climate science education, and some are actively using projections of future climate change in the development of decision support tools. Nonetheless, there appears to be a general need for more in-depth education on climate science and training in methods for using it more intentionally to inform project planning and decision making. Furthermore, the current cohort is doing minimal work explicitly focused on climate mitigation, one of the three key dimensions of climate resilience. Mitigation generally tends to be noted among the co-benefits of projects focused primarily on reducing the impacts of urban flooding.

Assessment interviewees shared the following lessons related to increasing the emphasis on climate resilience in CREWS-related work:

- Lack of knowledge of climate science and projections of future change may lead to a lack of urgency to address potential impacts through adaptation and resilience measures.
- Providing local leaders access to climate scientists bolsters their confidence and lends greater credibility to their voices in policy discussions.
- Education on climate science and adaptation helps advocates and policymakers corroborate local experience with scientific data.
- Many U.S. cities have yet to develop climate adaptation plans. Those that have plans developed them using relatively basic templates.
- Mapping climate vulnerability at the community or neighborhood scale is challenging and requires downscaling of climate data to fine geographic resolution.
- Quantifying and monetizing the benefits of climate adaptation and mitigation measures is difficult.
- Affordability is an important aspect of water-related climate adaptation decisions because of the potential impact of new capital projects on customers' utility rates.

Image courtesy of Shutterstock

Opportunity: Bolster Use of Climate Science in Project Planning and Decision-Making Processes

The complexity and uncertainty of long-range climate projections can be stifling for climate resilience practitioners. But, deep knowledge and rigorous use of climate science is not essential to take informed, sensible action in the near term. At a minimum, planners should be equipped to: a) identify infrastructure investments that make sense under current climate conditions; b) understand regional climate trends and consider how potential investments might perform under select projected climate change scenarios (i.e., do not simply design to historical norms); and c) make investment decisions that allow for flexibility and adaptation over time.

While these steps do not require technical expertise in climate science, CREWS practitioners could benefit from deeper education in climate science as well as basic training or technical assistance regarding how to approach planning decisions under conditions of uncertainty. To fill that need, some CREWS grantees have forged partnerships with science organizations. For example, the Anthropocene Alliance has a partnership with the American Geophysical Union, Thriving Earth Exchange; and the Deep South Center for Environmental Justice has one with the Union of Concerned Scientists. Other organizations that could potentially provide education or technical assistance in a similar vein include the U.S. Global Change Research Program (managers of the National Climate Assessment), the Water Utility Climate Alliance, and the American Society of Adaptation Professionals.

User-friendly decision support tools can also make climate science more accessible and usable for lay users. For example, CREWS grantee The Trust for Public Land integrated climate science elements into its Climate-Smart Cities green infrastructure planning tool. Additionally, the CREAT risk assessment tool, developed by the U.S. EPA Creating Resilient Water Utilities initiative, includes useful basics on climate science and projected climate change scenarios.

CONCLUSION: ENHANCING AND SUSTAINING IMPACT INTO THE FUTURE

Urban flooding is not unique to low-income communities and communities of color, but it does tend to affect them disproportionately in terms of frequency, severity, and cost. With climate change projected to produce more-frequent extreme rainfall events across the United States, the vulnerability of these communities will only increase without action in the near term. Fortunately, a diverse community of dedicated practitioners is developing the knowledge, skills, and networks needed to help build the resilience of these vulnerable communities to water-related climate impacts.

Spurred by the vision, leadership, and philanthropy of The Kresge Foundation CREWS initiative, this emerging community of practice is having a notable impact in communities and policymaking discussions across the United States. The emphasis Kresge has put on the equity dimension of urban flooding and climate resilience is helping to instill an "equity lens" in the water sector more broadly. One interviewee called it a "game changer," noting that practitioners, stakeholders, and decision makers across scales are now beginning to recognize that urban water problems require the active engagement and participation of affected residents to design and implement environmentally, economically, and socially just solutions. Moreover, Kresge's influence is also apparent in the philanthropic sector as other national and regional funders are beginning to embrace equity as a central tenet of their water-focused grantmaking.

Summary of Key Practitioner Needs

- Greater awareness of the importance of functional stormwater and wastewater infrastructure among residents in low-income communities and communities of color.
- Greater awareness among decision makers at the local, state, and federal level of the disparities associated with urban flooding, and the related environmental, social, and economic impacts in low-income communities and communities of color.
- Evaluation and demonstration of the full spectrum of GSI benefits in more compelling, evidence-driven ways.
- Access to experts in comparing the triple-bottom-line benefits of GSI versus grey stormwater infrastructure, or training on decision support tools that can run holistic cost-benefit analyses.
- Better and more-actionable information to gain buy-in for GSI projects from affected residents and decision makers.
- Innovative financing strategies to fund the implementation of GSI projects in low-income communities.
- Training for national organizations, utility managers, and municipal staff on DEI and culturally sensitive civic engagement strategies.
- Education for local organizations on the water cycle, integrated water management, how water systems and utilities operate, the drivers and impacts of climate change, and local planning and decision-making processes.
- Skills training for local organizations in civic engagement, advocacy, communications, use of decision support tools, and DEI.
- Funding that allows local leaders and community-based organizations to build and sustain institutional capacity over time.
- Deeper education on climate science and training in using it to inform project planning and decision making.

A significant amount of meaningful work is under way. However, important capacity-building and funding needs exist among practitioners of all types working at the complex intersection of water, climate resilience, and equity. At the same time, CREWS grantees and others working in this arena possess a strong desire to learn from one another and collaborate more actively and deeply to solve problems. Hence, there are several key opportunities The Kresge Foundation and other funders could seize to advance the development of a robust and effective community of practice equipped to sustain and enhance its impact over time. Such investment will be necessary to ensure the urban communities hit first and worst by flooding become ever more resilient as climate changes into the future.

Lessons for Water, Climate Resilience, and Equity Funders

The CREWS initiative assessment generated a number of important insights for funders considering investments in the water, climate resilience, and equity space, including:

- Field-building and place-based investments should be balanced; the outcomes of both should be integrated for optimal impact.
- Field-building investments take longer to generate measurable impacts but resulting structural change can solve problems across many communities.
- Place-based investments can generate more immediate, tangible outcomes; but broader, structural challenges will not be solved by even the most successful local projects.
- Place-based investments require due diligence to vet prospective grantees with regional and local funders.
- The capacity of funders to attend to place-based investments is as important as the capacity of grantees to execute projects.

APPENDIX A: CODING RUBRIC VARIABLES AND KEYWORDS

Grantee Project Variables

The coding rubric used to sort and quantify data from grantee proposals and reports included the following variables:

- Grantee Organization
- Project Name
- Grant Number/Request Number
- Grant Amount
- Grant Start Date
- Grant End Date
- Place-Based/Field-Building: Was the grant place-based, field-building, or both?
- PO Diversity Concern: Was there a diversity concern marked by the program officer?
- Organizational Budget–Annual
- Other Funders: Did any other funders support the Kresge grantee project, and if so, which funders?
- Collaboration with Other Kresge Grantees: Did the grantee collaborate with any other Kresge grantees on the project, and if so, with which organizations? This was determined based on responses to a question in CREWS report submissions regarding project partners.
- Named Partners/Collaborations
- City and State Location of Grantee Headquarters
- NCA Region of Grantee Headquarters: The National Climate Assessment puts out a list of regional divisions of the United States, which the Meridian team used to track the location of grantee headquarters.
- City and State of Kresge-Funded Work
- NCA Region of Kresge-Funded Work: The National Climate Assessment puts out a list of regional divions of the United States, which the Meridian team used to track the location of grantee work headquarters.
- Serves Low-Income Community
- Kresge Grant Classification
- Purpose of Grant: Brief (1-2 sentences) statement about the grant objective, drawn from the grant materials.
- Issue Area: "What" was addressed substantively by the project. The Meridian team made these designations based on the descriptions provided for each grant. Please refer to the comprehensive list of 'issue areas' below that served as the basis for entry of this data.
- Focal Activities/Tactics: "How" the work of the project was approached. The Meridian team made these designations based on the descriptions provided for each grant. Please refer to the comprehensive list of 'focal activities/tactics' below that served as the basis for entry of this data.
- Sectors Engaged: "Who" was engaged in the project. The Meridian team made these designations based on the descriptions provided for each grant. Please refer to the comprehensive list of 'sectors engaged' below that served as the basis for entry of this data.
- Centrality of Equity to Work: Marked on 4-tier scale of M, C, T, A, where M = main focus, C = considered, T = tangential, A = absent.
- Elements of Equity Addressed: If equity was addressed, was it addressed as procedural, distributional, structural, or some combination of the three? Procedural equity entails inclusive and authentic engagement in decision making; distributional equity entails programs resulting in fair distribution of benefits and burdens, prioritizing disadvantaged communities; and structural equity entails that decision makers institutionalize accountability, recognizing existing power dynamics.
- Centrality of Climate Resilience to Work: Marked on 4-tier scale of M, C, T, A, where M = main focus, C = considered, T = tangential, A = absent.
- Climate Resilience: If climate resilience was addressed, was it addressed as mitigation, adaptation, social cohesion, or some combination of the three?
- Conducting/Conducted Formal Evaluation: Did the grantee conduct, or is the grantee planning to conduct, a formal project assessment using an external evaluator?
- Grantee Website URL
- Interview Contact(s): The name(s) of grantee staff interviewed as part of the CREWS program assessment.

APPENDIX A: CODING RUBRIC VARIABLES AND KEYWORDS

The coding rubric included several additional variables specific to projects by grantees who received funding both prior to and after implementation of the CREWS strategy. This is because the earlier projects were all completed, while many of the post-CREWS projects were still in progress. The additional variables are:

- Grant Report Submitted?
- Key Outcomes
- Lessons Learned
- Outstanding Issues/Gaps

Keywords for Issue Area (What)

- Climate Resilience
- Drinking-Water Management
- Federal Disaster Programs/Funding
- Housing
- Integrated Water Management
- Disaster Response/Recovery
- Land Use Planning
- Urban Flooding/Stormwater Management
- Urban–Rural Divide
- Urban Sustainability
- Water Infrastructure/Legacy Systems
- Water Equity/Justice
- Wastewater Management
- Water–Energy Nexus
- Watershed Management
- Water Quality
- Water Supply Security/Sustainability

Keywords for Activities/Tactics (How)

- Advocacy–Local
- Advocacy–State
- Advocacy–Federal
- Capacity Building–Technical/Science
- Capacity Building–Advocacy/Community Organizing
- Capacity Building–Finance/Funding
- Coalition/Network Building: Communications Materials
- Collaborative Problem Solving: Kresge Grantee Collaboration
- Corporate Engagement
- Cost-Benefit Analysis/Project Feasibility Assessment
- Cross-Jurisdictional Coordination
- Data Collection, Analysis, and Accessibility
- Decision Support Tools
- Green Infrastructure
- Innovative Finance: Natural Capital Accounting: Environmental Impact Bonds
- Information Sharing/Knowledge Transfer: Expert Convenings, Innovative Design
- Municipal Procurement Rules and Procedures
- Peer Learning: Convenings, Webinars, Work Groups, Social Media
- Pilot Projects
- Risk Assessment
- Storytelling
- Upstream–Downstream Collaboration

Keywords for Sectors Engaged (With Whom)

- Academia
- Community-Based Organizations
- Community Leaders
- Faith-Based Organizations
- Government–Federal
- Government–State
- Government–Local
- Kresge Grantees
- Local Citizens
- Non-Governmental Organizations
- Private Sector
- Tribes
- Vulnerable Communities/Populations
- Water/Wastewater Utilities

APPENDIX B: LIST OF ADDITIONAL EXPERTS INTERVIEWED

Additional Experts

Kristin Baja
Climate Resilience Officer
Urban Sustainability Directors Network

Lynn Broaddus
President
Broadview Consulting

Sonia Brubaker
Program Manager, Water Infrastructure and Resiliency Finance Center
U.S. Environmental Protection Agency

Helen Chin
Program Director, Sustainable Environments
Surdna Foundation

Michael Davis
Director, Environmental Justice & Service Equity Division
Seattle Public Utilities

Steve Hamai
Equity Planning and Analysis, Environmental Justice & Service Equity Division
Seattle Public Utilities

Andy Kricun
Executive Director and Chief Engineer
Camden County Municipal Utility Authority

Simone Lightfoot
Director, National Urban Initiatives
National Wildlife Federation

Jacqui Patterson
Director, Environment and Climate Justice Program
National Association for the Advancement of Colored People

Diane Schrauth
Program Consultant
Funders' Network for Smart Growth and Livable Communities

Joel Smith
Principal Associate
Abt Associates

APPENDIX C: CREWS GRANTEE PROFILES

The following table provides profiles of the 21 organizations with active CREWS grants during the course of the assessment conducted by Meridian Institute. The 26 grants analyzed in the assessment are reflected among others received by the organizations listed.

American Rivers	
Organizational Overview:	Founded in 1973, American Rivers is the nation's leading river conservation organization. Our mission is to protect and restore the rivers and clean water that sustain people, wildlife, and nature. American Rivers has over 100,000 supporters, members, and volunteers nationwide, with staff in Washington, D.C. and the Mid-Atlantic, Northeast, Midwest, Southeast, California and Northwest regions. Through our work on climate change adaptation, clean and abundant water supplies, river restoration, and river protection, we are working to protect our natural heritage, undo the damage of the past, and create a healthy and more sustainable future.
Headquarters Location:	Washington, D.C.
Grant 1 Title:	Securing Sustainable Water Resources in an Era of Climate Change
Grant 1 Purpose Statement:	Demonstrating successful strategies for basin-level approaches to sustaining water resources in a changing climate
Grant 1 Start and End Date:	1/1/2014–12/31/2015
Grant 1 Amount:	$750,000
Grant 1 Geographic Focus of Kresge-Funded Work:	Atlanta, Georgia and the Flint River; Raleigh, North Carolina and the Neuse River; the "tri-city" region of Southeast Washington and the Yakima River, and Contra Costa County (East Bay), California and the Marsh Creek watershed
Grant 2 Title:	Catalyzing Integrated Urban Water Management for People and the Environment
Grant 2 Purpose Statement:	To provide guidance, technical expertise, and practical tools to empower cities to integrate and coordinate their multiple water management responsibilities as they face complexities introduced by climate change
Grant 2 Start and End Date:	1/1/2016–12/31/2016
Grant 2 Amount:	$300,000
Grant 2 Geographic Focus of Kresge-Funded Work:	Atlanta, Georgia; Harrisburg, Pennsylvania; Milwaukee, Wisconsin; Richmond-San Pablo, California
Grant 3 Title:	Catalyzing Integrated Urban Water Management for People and the Environment

APPENDIX C: CREWS GRANTEE PROFILES

American Rivers *continued*	
Grant 3 Purpose Statement:	To provide guidance, technical expertise, and practical tools to support more integrated water management in cities and empower the leadership of community-based organizations as they face complexities introduced by climate change
Grant 3 Start and End Date:	1/1/2017–1/31/2017
Grant 3 Amount:	$300,000
Grant 3 Geographic Focus of Kresge-Funded Work:	Atlanta, Georgia; Harrisburg, Pennsylvania; Milwaukee, Wisconsin; Richmond-San Pablo, California
Grant 4 Title:	Convening of Sustainable Urban Water Management Leaders
Grant 4 Purpose Statement:	To convene leaders active at the intersection of climate change, water management, and equity to foster cross-organizational synergy, strategy, and partnership and provide an assessment of the CREWS work in partnership with Meridian Institute
Grant 4 Start and End Date:	2/1/2017–10/31/2017
Grant 4 Amount:	$196,217
Grant 4 Geographic Focus of Kresge-Funded Work:	Atlanta, Georgia; Harrisburg, Pennsylvania; Milwaukee, Wisconsin; Richmond-San Pablo, California
Program Assessment Interviewee(s):	Gary Belan and Jenny Hoffner
Website:	https://www.americanrivers.org/

Anthropocene Alliance	
Organizational Overview:	Anthropocene Alliance assists individuals and communities harmed by environmental abuse and climate change. Anthropocene Alliance gives communities the tools they need to communicate and organize and helps them get support from elected officials, government agencies, and volunteer organizations.
Headquarters Location:	Chicago, Illinois
Grant Title:	Flood Forum USA: Capacity Building for CBOs Working on Localized, Urban Flooding
Grant Purpose Statement:	A foundational grant for Flood Forum USA to help flood survivors from cities across the United States get organized, heard, and supported in order to achieve a safer and more sustainable future
Grant Start and End Date:	11/1/2017–10/31/2020
Grant Amount:	$350,000
Geographic Focus of Kresge-Funded Work:	St. Louis area, Missouri; New Orleans & Lafayette, Louisiana; Chicago, Illinois; Port Arthur & Houston, Texas; Pensacola, Florida
Program Assessment Interviewee(s):	Harriet Festing
Website:	https://www.anthropocenealliance.org/

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Carpe Diem West	
Organizational Overview:	Carpe Diem West leads a network of diverse water leaders in the western United States. Together, we catalyze innovative, equitable, and sustainable responses to water crises as the climate changes in the American West.
Headquarters Location:	Sausalito, California
Grant 1 Title:	Carpe Diem—Western Water & Climate Change
Grant 1 Purpose Statement:	The proposed project is a year-old initiative that seeks to engage key water-resources stakeholders from across the western United States to fundamentally rethink how water is stored and delivered so that ecosystems are protected, agricultural economies are sustained, and all people have access to adequate, clean water as the climate changes.
Grant 1 Start and End Date:	4/1/2009–3/31/2010
Grant 1 Amount:	$100,000
Grant 1 Geographic Focus of Kresge-Funded Work:	United States
Grant 2 Title:	Carpe Diem—Western Water & Climate Change
Grant 2 Purpose Statement:	Rethinking water management policy in the western United States in light of climate change
Grant 2 Start and End Date:	4/1/2010–3/31/2012
Grant 2 Amount:	$450,000
Grant 2 Geographic Focus of Kresge-Funded Work:	Western United States
Grant 3 Title:	General Operating Support
Grant 3 Purpose Statement:	Supporting collaborative policies and practices for water and climate in the American West
Grant 3 Start and End Date:	4/1/2012–3/31/2014
Grant 3 Amount:	$377,000
Grant 4 Title:	Healthy Headwaters Program
Grant 4 Purpose Statement:	Addressing water resources management challenges in light of a changing climate by engaging key water-resources stakeholders and leaders from across the western United States
Grant 4 Start and End Date:	7/1/2014–6/30/2016
Grant 4 Amount:	$400,000
Grant 4 Geographic Focus of Kresge-Funded Work:	Washington, California, Nevada, New Mexico, Montana, Arizona, Oregon, Idaho, Colorado

APPENDIX C: CREWS GRANTEE PROFILES

Carpe Diem West *continued*	
Grant 5 Title:	Health Headwaters/Healthy Cities
Grant 5 Purpose Statement:	Expanding the capacity of water professionals and communities to address water resource management challenges, health, and equity in western watersheds
Grant 5 Start and End Date:	7/1/2016–6/30/2017
Grant 5 Amount:	$200,000
Grant 5 Geographic Focus of Kresge-Funded Work:	Washington, California, Nevada, New Mexico, Montana, Arizona, Oregon, Idaho, Colorado
Grant 6 Title:	Healthy Headwaters & Water Justice
Grant 6 Purpose Statement:	Advancing climate-resiliency planning for water and equity in the American West
Grant 6 Start and End Date:	8/1/2017–7/31/2018
Grant 6 Amount:	$150,000
Grant 6 Geographic Focus of Kresge-Funded Work:	Washington, California, Nevada, New Mexico, Montana, Arizona, Oregon, Idaho, Colorado
Program Assessment Interviewee(s):	Kimery Wiltshire
Website:	http://www.carpediemwest.org/

Chesapeake Bay Foundation	
Organizational Overview:	The Chesapeake Bay Foundation (CBF) is known for its simple and direct mission statement: Save the Bay. CBF's vision is a restored Chesapeake Bay, with healthy rivers and clean water; sustainable populations of crabs, fish, and oysters; thriving water-based and agricultural economies; and a legacy of success for our children and grandchildren. CBF pursues its mission and vision through complimentary programs of environmental education, policy advocacy, strategic litigation, environmental restoration, and public outreach. As the largest independent conservation organization dedicated solely to restoring the Chesapeake Bay, CBF operates throughout the Chesapeake's six-state, 64,000-square-mile watershed. With offices in Maryland, Virginia, Pennsylvania and the District of Columbia, and 15 field education centers, CBF is leading the way in restoring the Chesapeake Bay and its rivers and streams.
Headquarters Location:	Annapolis, Maryland
Grant Title:	Advancing Green Infrastructure and Innovative Financing in Climate-vulnerable, Underserved Communities in the Chesapeake Bay Region
Grant Purpose Statement:	To advance green infrastructure solutions for low-income communities in the Chesapeake Bay region

Chesapeake Bay Foundation *continued*	
Grant Start and End Date:	9/1/2017–8/31/2019
Grant Amount:	$370,000
Geographic Focus of Kresge-Funded Work:	Baltimore, Maryland
Program Assessment Interviewee(s):	Lee Epstein
Website:	http://www.cbf.org/

Deep South Center for Environmental Justice	
Organizational Overview:	Founded in 1992, the Deep South Center for Environmental Justice (DSCEJ) is dedicated to improving the lives of children and families harmed by pollution and vulnerable to climate change in the Gulf Coast region through research, education, community and student engagement for policy change, as well as health and safety training for environmental careers. DSCEJ provides opportunities for communities, scientific researchers, and decision makers to collaborate on projects that promote the rights of all people to be free from environmental harm as it impacts health, jobs, housing, education, and a general quality of life. A major goal of DSCEJ continues to be the development of leaders in communities of color along the Mississippi River Chemical Corridor and the broader Gulf Coast region who are disproportionately exposed to pollution that harms human health and warms the planet.
Headquarters Location:	New Orleans, Louisiana
Grant Title:	Gulf Region Communities Water Justice Strategic Plan Development
Grant Purpose Statement:	To engage in a strategic-planning process to strengthen existing regional networks and collaborations in the Gulf region to address climate change, flooding, and public health by building the capacity of environmental, academic, and social justice partners
Grant Start and End Date:	11/1/2017–8/31/2018
Grant Amount:	$100,000
Geographic Focus of Kresge-Funded Work:	Mobile, Alabama; Pensacola, Florida; New Orleans, Louisiana; Gulfport, Mississippi; Houston, Texas
Program Assessment Interviewee(s):	Monique Harden
Website:	http://www.dscej.org/

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Earth Economics	
Organizational Overview:	Earth Economics's mission is to quantify and value the benefits nature provides. At Earth Economics, we see a future in which natural resources are fully valued and considered in all policy and investment decisions made by governments, organizations, and individuals. As experts in the field of ecological economics, we have provided innovative analysis and recommendations to agency and community leaders focused on resilience, natural resources, and community building. Throughout our history, we have worked extensively throughout the United States and internationally. In all regions, we work with cities, counties, utilities, agencies, NGOs, and tribes to demonstrate the value of nature in our economies and communities.
Headquarters Location:	Tacoma, Washington
Grant 1 Title:	Accounting for Natural Capital in the 21st Century Economy
Grant 1 Purpose Statement:	To update accounting rules and economic valuation tools for watersheds that provide and filter the nation's drinking water and contribute to resilience for cities across the United States
Grant 1 Start and End Date:	8/1/2013–7/31/2015
Grant 1 Amount:	$340,000
Geographic Focus of Kresge-Funded Work:	United States
Grant 2 Title:	Natural Capital Resilience Policy and Action
Grant 2 Purpose Statement:	Advancing the economics, accounting, and implementation of green infrastructure investments to improve the climate resilience of communities
Grant 2 Start and End Date:	9/1/2015–8/31/2017
Grant 2 Amount:	$540,000
Geographic Focus of Kresge-Funded Work:	United States
Grant 3 Title:	Using Economics to Bolster Investments in Green Infrastructure, Equity, and Climate Resilience
Grant 3 Purpose Statement:	To accelerate green infrastructure and climate resilience projects across the United States by providing planning, financing, and national policy support to local agencies and community-based organizations
Grant 3 Start and End Date:	9/1/2017–8/31/2019
Grant 3 Amount:	$540,000
Geographic Focus of Kresge-Funded Work:	United States
Program Assessment Interviewee(s):	Matt Chadsey
Website:	http://www.eartheconomics.org/

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Fair Share Housing Center	
Organizational Overview:	Fair Share Housing Center (FSHC), founded in 1975, is the only public interest organization entirely devoted to defending the housing rights of New Jersey's poor through enforcement of the Mount Laurel Doctrine, the landmark decision that prohibits economic discrimination through exclusionary zoning and requires all towns to provide their "fair share" of their region's need for affordable housing. The mission of FSHC is to end discriminatory or exclusionary housing patterns that have deprived the poor, particularly those presently living in inner cities, of the opportunity to reside in an environment that offers safe, decent, and sanitary housing near employment and educational opportunities.
Headquarters Location:	Cherry Hill, New Jersey
Grant 1 Title:	Better Data for More Equitable Resilience: Developing an Improved National Framework for Disaster Response and Resilience Planning
Grant 1 Purpose Statement:	To develop data and policy tools to restructure federal disaster programs to ensure that recovery from future disasters occurs in a more racially and economically inclusive and sustainable manner
Grant 1 Start and End Date:	1/1/2016–12/31/2017
Grant 1 Amount:	$436,878
Grant 1 Geographic Focus of Kresge-Funded Work:	United States
Grant 2 Title:	Ensuring Equitable, Resilient, and Climate Responsive Disaster Recovery
Grant 2 Purpose Statement:	To engage in applied research and advocacy to influence key policies around equitable recovery from natural disasters, extreme storms, and flooding in low-income communities and climate-vulnerable geographies in the United States
Grant 2 Start and End Date:	11/1/2017–10/31/2019
Grant 2 Amount:	$403,990
Grant 2 Geographic Focus of Kresge-Funded Work:	Houston, Texas; Puerto Rico; Florida; Virgin Islands
Program Assessment Interviewee:	Adam Gordon
Website:	http://fairsharehousing.org/

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Freshwater Future	
Organizational Overview:	The mission of Freshwater Future is to ensure the healthy future of our waters in the Great Lakes region.
Headquarters Location:	Petoskey, Michigan
Grant 1 Title:	Great Lakes Community Climate Program
Grant 1 Purpose Statement:	Training leaders of urban, community-based organizations to incorporate climate-change considerations in local environmental projects
Grant 1 Start and End Date:	7/1/2012–6/30/2014
Grant 1 Amount:	$420,000
Grant 1 Geographic Focus of Kresge-Funded Work:	Great Lakes Basin
Grant 2 Title:	Great Lakes Community Climate Program
Grant 2 Purpose Statement:	Training leaders of urban, community-based organizations to incorporate climate-change considerations in local environmental projects
Grant 2 Start and End Date:	7/1/2014–6/30/2015
Grant 2 Amount:	$79,080
Grant 2 Geographic Focus of Kresge-Funded Work:	Great Lakes Basin
Grant 3 Title:	Engaging Great Lakes Communities in the Clean Water for All Campaign
Grant 3 Purpose Statement:	Engaging Great Lakes community-based groups in the Clean Water For All Campaign
Grant 3 Start and End Date:	9/1/2017–8/31/2018
Grant 3 Amount:	$50,000
Grant 3 Geographic Focus of Kresge-Funded Work:	Detroit, Michigan; Flint, Michigan; Toledo, Ohio; Cleveland, Ohio
Program Assessment Interviewee(s):	Jill Ryan
Website:	https://freshwaterfuture.org/

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Global Philanthropy Partnership/Green Infrastructure Leadership Exchange	
Organizational Overview:	The Green Infrastructure Leadership Exchange coordinates a peer-learning network for municipal utility managers who are responsible for the design, implementation, and management of green stormwater infrastructure (GSI) systems.
Headquarters Location:	Chicago, Illinois
Grant 1 Title:	Green Infrastructure Leadership Exchange
Grant 1 Purpose Statement:	Support activities and network development for the Green Infrastructure Leadership Exchange, a city-to-city practitioner network and resource exchange that seeks to accelerate research, innovation, and implementation related to green stormwater infrastructure
Grant 1 Start and End Date:	7/1/2016–6/30/2017
Grant 1 Amount:	$200,000
Grant 1 Geographic Focus of Kresge-Funded Work:	United States and Canada
Grant 2 Title:	Green Infrastructure Leadership Exchange
Grant 2 Purpose Statement:	To support the Green Infrastructure Leadership Exchange, a city-to-city practitioner network that seeks to accelerate research, innovation, and implementation around green stormwater infrastructure
Grant 2 Start and End Date:	8/1/2017–7/31/2019
Grant 2 Amount:	$450,000
Grant 2 Geographic Focus of Kresge-Funded Work:	Multiple cities in the United States
Assessment Interviewee(s):	Paula Conolly
Website:	https://www.global-philanthropy.org/

GreenLatinos	
Organizational Overview:	GreenLatinos is a national, non-profit organization that convenes a broad coalition of Latino leaders committed to addressing national, regional, and local environmental, natural resources, and conservation issues that significantly affect the health and welfare of the Latino community in the United States. GreenLatinos provides an inclusive table at which its members establish collaborative partnerships and networks to improve the environment; protect and promote conservation of land and other natural resources; amplify the voices of minority, low-income, and tribal communities; and train, mentor, and promote the current and future generations of Latino environmental leaders for the benefit of the Latino community and beyond. GreenLatinos develops and advocates for policies and programs to advance this mission.

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GreenLatinos *continued*	
Headquarters Location:	Washington, D.C.
Grant Title:	Engaging Latino Community-based Groups in the Clean Water For All Campaign
Grant Purpose Statement:	To strengthen the participation of Latino advocacy groups in the national Clean Water for All Campaign
Grant Start and End Date:	9/1/2017–8/31/2018
Grant Amount:	$50,000
Geographic Focus of Kresge-Funded Work:	Pennsylvania, Virginia, New York, Illinois
Program Assessment Interviewee(s)	Mark Magana
Website:	http://www.greenlatinos.org/

Greenprint Partners (formerly Fresh Coast Capital)	
Organizational Overview:	Greenprint Partners is a green infrastructure delivery partner that helps cities achieve high-impact, community-driven stormwater solutions at scale. Projects are designed to maximize benefits, like neighborhood revitalization, public health and safety, and new job opportunities.
Headquarters Location:	Chicago, Illinois
Grant Title:	Developing and Piloting Greenprint Partners' Private Land Program in St. Louis: Achieving Scale and Impact in Green Infrastructure by Targeting Faith-Based Organizations
Grant Purpose Statement:	To advance green infrastructure solutions for community-based institutions on private land in low-income, urban communities in St. Louis, Missouri
Grant Start and End Date:	10/1/2017–1/31/2019
Grant Amount:	$500,000
Geographic Focus of Kresge-Funded Work:	St. Louis, Missouri
Program Assessment Interviewee(s):	April Mendez and Ryan Wilson
Website:	https://www.greenprintpartners.com/

APPENDIX C: CREWS GRANTEE PROFILES

Hip Hop Caucus	
Organizational Overview:	The Hip Hop Caucus strengthens the participation of community cultural leaders in the national Clean Water for All Campaign, which brings together national, regional, and local advocates from diverse backgrounds to defend and, where possible, strengthen federal protections and funding for clean water in the United States.
Headquarters Location:	Washington, D.C.
Grant Title:	Engaging Community Cultural Leaders in the Clean Water For All Campaign
Grant Purpose Statement:	To strengthen the participation of community cultural leaders in the national Clean Water for All Campaign
Grant Start and End Date:	9/1/2017–8/31/2018
Grant Amount:	$50,000
Geographic Focus of Kresge-Funded Work:	Detroit, Michigan; Philadelphia, Pennsylvania; Chicago, Illinois; cities in Minnesota, Ohio, and Virginia
Program Assessment Interviewee(s):	Mustafa Ali
Website:	http://hiphopcaucus.org/

National Wildlife Federation	
Organizational Overview:	The National Wildlife Federation, America's oldest and largest conservation organization, works across the country to unite Americans from all walks of life in giving wildlife a voice. We have been on the front lines for wildlife since 1936, fighting for the conservation values that are woven into the fabric of our nation's collective heritage.
Headquarters Location:	Reston, Virginia
Grant 1 Title:	Climate Change Adaptation in the Great Lakes: Advancing the Regional Discussion
Grant 1 Purpose Statement:	Defining strategies for addressing likely impacts of climate change on the Great Lakes ecosystem
Grant 1 Start and End Date:	7/1/2010–10/31/2010
Grant 1 Amount:	$37,000
Grant 1 Geographic Focus of Kresge-Funded Work:	Great Lakes Basin
Grant 2 Title:	Climate Smart Restoration Partnership
Grant 2 Purpose Statement:	Supporting the Climate-Smart Restoration Partnership for the Great Lakes and Chesapeake Bay
Grant 2 Start and End Date:	10/1/2010–9/30/2011

APPENDIX C: CREWS GRANTEE PROFILES

National Wildlife Federation *continued*	
Grant 2 Amount:	$200,000
Grant 2 Geographic Focus of Kresge-Funded Work:	Great Lakes Basin, Chesapeake Bay region
Grant 3 Title:	Healing Our Waters Coalition: Implementing Great Lakes Restoration
Grant 3 Purpose Statement:	Continue to promote funding, policies, and climate-smart restoration projects to restore the Great Lakes
Grant 3 Start and End Date:	9/1/2011–2/28/2013
Grant 3 Amount:	$300,000
Grant 3 Geographic Focus of Kresge-Funded Work:	Great Lakes Basin
Grant 4 Title:	Climate-Smart Coastal Restoration Project – Part II
Grant 4 Purpose Statement:	Supporting the Climate–Smart Restoration Partnership for the Great Lakes and Chesapeake Bay
Grant 4 Start and End Date:	10/1/2012–3/31/2014
Grant 4 Amount:	$200,000
Grant 4 Geographic Focus of Kresge-Funded Work:	Great Lakes Basin and Chesapeake Bay
Grant 5 Title:	Clean Water for All Campaign
Grant 5 Purpose Statement:	To strengthen the participation of environmental and social justice groups in the national Clean Water for All Campaign
Grant 5 Start and End Date:	9/1/2017–8/31/2018
Grant 5 Amount:	$100,000
Grant 5 Geographic Focus of Kresge-Funded Work:	Pennsylvania, Virginia, Montana, Maine, Wisconsin, Michigan, Minnesota, Illinois, New York
Program Assessment Interviewee(s):	Rosemary Enobakharer
Website:	https://www.nwf.org/

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One Voice	
Organizational Overview:	One Voice is a non-profit, civic-engagement organization working to give voice to marginalized and vulnerable communities across the South by democratizing public policy through research, training, education, and organizing in order to make a difference in the civic life of traditionally silenced and underserved communities.
Headquarters Location:	Jackson, Mississippi
Grant Title:	Water Inclusion and Innovation Project
Grant Purpose Statement:	To conduct research in six southern states to advance climate-resilience planning and financing for stormwater and wastewater projects in economically disadvantaged communities
Grant Start and End Date:	11/1/2017–10/31/2018
Grant Amount:	$150,000
Geographic Focus of Kresge-Funded Work:	Jackson, Mississippi; Selma, Alabama; Homestead, Florida; Spartanburg, South Carolina; Henderson, North Carolina; Chattanooga, Tennessee;
Program Assessment Interviewee(s):	Bennetta Robinson
Website:	http://onevoicems.org/

Pacific Forest Trust	
Organizational Overview:	Pacific Forest Trust is dedicated to conserving, restoring, and enhancing America's vital, productive forest landscapes for all the public benefits that they provide, such as water, a balanced climate, sustainable communities, wildlife, and recreation.
Headquarters Location:	San Francisco, California
Grant 1 Title:	Climate Change Resilience and a New Approach to Water Security
Grant 1 Purpose Statement:	Developing a new approach to ensuring water security through restoring and maintaining essential natural infrastructure with concession financing
Grant 1 Start and End Date:	7/1/2014–6/30/2016
Grant 1 Amount:	$250,000
Grant 2 Title:	Healthy Watersheds California
Grant 2 Purpose Statement:	Developing a new approach to ensuring water security through restoring and maintaining essential natural infrastructure with concession financing
Grant 2 Start and End Date:	7/1/2016–6/30/2017

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Pacific Forest Trust *continued*	
Grant 2 Amount:	$125,000
Grant 3 Title:	Healthy Watersheds California
Grant 3 Purpose Statement:	Operationalizing a new approach to restoring and maintaining essential natural infrastructure
Grant 3 Start and End Date:	8/1/2017–7/31/2018
Grant 3 Amount:	$100,000
Geographic Focus of Kresge-Funded Work:	California
Program Assessment Interviewee(s):	Laurie Wayburn
Website:	https://www.pacificforest.org/

PolicyLink	
Organizational Overview:	PolicyLink is a national research and action institute advancing economic and social equity by "lifting up what works."
Headquarters Location:	Oakland, California
Grant Title:	The Water Equity Caucus: Advancing a Climate Resilient and Equitable Water Future for All
Grant Purpose Statement:	To develop a national climate-resilience and water-equity caucus to forge shared principles, strategies, and activities
Grant Start and End Date:	6/1/2017–5/31/2018
Grant Amount:	$250,000
Geographic Focus of Kresge-Funded Work:	United States
Program Assessment Interviewee(s):	Kalima Rose
Website:	http://www.policylink.org/

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re:focus partners	
Organizational Overview:	re:focus partners brings together expertise in engineering, design, public policy, and finance to craft resilient infrastructure solutions—including water, waste, and energy projects—and build new public–private partnerships that better align public funds and leverage greater private investment to protect and improve the lives of vulnerable communities around the world.
Headquarters Location:	San Diego, California
Grant Title:	Procuring Urban Resilience: Helping Cities Transform Legacy Water Infrastructure Systems
Grant Purpose Statement:	To provide technical assistance in six small- to medium-sized cities to identify, address, and overcome barriers to promote innovative and climate-resilient solutions for water infrastructure
Grant Start and End Date:	1/1/2018–9/30/2018
Grant Amount:	$220,000
Geographic Focus of Kresge-Funded Work:	United States, specific cities TBD at time of grant submission
Program Assessment Interviewee(s):	Aleka Seville[16]
Website:	http://www.refocuspartners.com/procuring-resilience

River Network	
Organizational Overview:	River Network's mission is to empower and unite people and communities to understand, protect, and restore rivers and their watersheds.
Headquarters Location:	Boulder, Colorado
Grant Title:	Civic Engagement for Clean Water & Healthy Communities
Grant Purpose Statement:	Strengthen the capacity of community-based organizations to advocate for resilient urban water systems in 10 communities
Grant Start and End Date:	8/1/2016–7/31/2019
Grant Amount:	$554,300
Geographic Focus of Kresge-Funded Work:	Albuquerque, New Mexico; Denver, Colorado; Portland, Oregon; Atlanta, Georgia; Providence, Rhode Island; Newark, New Jersey; Pittsburg, Pennsylvania; Milwaukee, Wisconsin; Chicago, Illinois; Tombstone, California
Program Assessment Interviewee(s):	Nicole Silk and Diana Toledo
Website:	https://www.rivernetwork.org/

APPENDIX C: CREWS GRANTEE PROFILES

The Nature Conservancy	
Organizational Overview:	The Nature Conservancy is a global conservation organization dedicated to conserving the lands and waters on which all life depends.
Headquarters Location:	Arlington, Virginia
Grant 1 Title:	Building the Case for Natural Infrastructure
Grant 1 Purpose Statement:	Make the case for natural-infrastructure-based climate solutions to proactively address flood and storm risks
Grant 1 Start and End Date:	1/1/2015–6/30/2017
Grant 1 Amount:	$575,000
Grant 1 Geographic Focus of Kresge-Funded Work:	National
Grant 2 Title:	Watershed Improvement District (WID) Feasibility Study
Grant 2 Purpose Statement:	To support The Nature Conservancy to complete a feasibility study for a watershed improvement district (WID) in the Eastern Market district and identify the elements necessary to make the WID concept viable in other Detroit neighborhoods
Grant 2 Start and End Date:	1/1/2018–3/31/2019
Grant 2 Amount:	$250,000
Grant 2 Geographic Focus of Kresge-Funded Work:	Detroit, Michigan
Program Assessment Interviewee(s):	Valerie Strassberg, Helen Taylor, Rachel Mulbry, Emy Rodriguez Rancier, Jan Lee, and Meera Bhat
Website:	https://www.nature.org/

The Trust for Public Land	
Organizational Overview:	The Trust for Public Land creates parks and conserves land for people, ensuring healthy, livable communities for generations to come.
Headquarters Location:	San Francisco, California
Grant 1 Title:	Addressing Vacant Land Use Challenges through the Detroit Greenfield Competition
Grant 1 Purpose Statement:	To develop innovative, open-space strategies and revitalize large portions of Detroit's vacant land through a large-scale competition
Grant 1 Start and End Date:	11/1/2015–12/31/2018
Grant 1 Amount:	$300,000
Grant 1 Geographic Focus of Kresge-Funded Work:	Detroit, Michigan (neighborhoods: Delray, Chaldeantown, Island View, Northeast)

APPENDIX C: CREWS GRANTEE PROFILES

The Trust for Public Land *continued*	
Grant 2 Title:	Creative Placemaking and Climate-Smart Cities: An Equity-driven Approach to Creating Parks for People
Grant 2 Purpose Statement:	This cross-team grant provides support for the Trust for Public Land to pilot the holistic integration of Climate-Smart Cities and Creative Placemaking strategies in their Parks for People Program.
Grant 2 Start and End Date:	6/1/2016–5/31/2019
Grant 2 Amount:	$1,600,000
Grant 2 Geographic Focus of Kresge-Funded Work:	New Orleans, Louisiana; Philadelphia, Pennsylvania; Richmond, California
Program Assessment Interviewee(s):	Nette Compton, Lida Aljabar, Fernando Cazares
Website:	https://www.tpl.org/

US Water Alliance	
Organizational Overview:	The U.S. Water Alliance advances policies and programs that build a sustainable water future for all.
Headquarters Location:	Washington, D.C.
Grant 1 Title:	Advancing Water Equity
Grant 1 Purpose Statement:	Create and advance a national water-equity agenda that encompasses equity and climate change
Grant 1 Start and End Date:	8/1/2016–1/31/2018
Grant 1 Amount:	$366,000
Grant 1 Geographic Focus of Kresge-Funded Work:	United States
Grant 2 Title:	Re-Imagining Climate Resilient Water Infrastructure Systems in Small- to Medium-Sized Cities
Grant 2 Purpose Statement:	To convene senior-level water decision makers in eight small- to medium-sized cities to identify and overcome procurement barriers to advance climate-resilient planning and implementation for water infrastructure
Grant 2 Start and End Date:	1/1/2018–9/30/2018
Grant 2 Amount:	$24,000
Grant 2 Geographic Focus of Kresge-Funded Work:	Atlanta, Georgia; Buffalo, New York; Camden, New Jersey; Cleveland, Ohio; Louisville, Kentucky; Milwaukee, Wisconsin
Program Assessment Interviewee(s):	Radhika Fox
Website:	http://uswateralliance.org/

Notes

1. National Climate Assessment, *Water Resources*, 2014, https://nca2014.globalchange.gov/report/sectors/water

2. Federal Emergency Management Agency (FEMA), *An Affordability Framework on the National Flood Insurance Program*, April 2018, https://www.fema.gov/media-library-data/1524056945852-e8db76c696cf3b7f6209e1adc4211af4/Affordability.pdf
About 26 percent of National Flood Insurance Program (NFIP) residential policyholder households inside Special Flood Hazard Areas (SFHAs) are low-income and 51 percent of non-policyholder households in SFHAs are low-income, as defined by the United States Department of Housing and Urban Development (HUD).

3. Kurt Kuban, "Toxic mold is new worry for Detroiters affected by 2014 flooding," *Detroit Free Press*, August 19, 2016, https://www.freep.com/story/news/local/michigan/detroit/2016/08/19/toxic-mold-new-worry-detroiters-whose-basements-flooded-2014-storm/88993518/

4. National Climate Assessment, *Extreme Weather*, 2014, https://nca2014.globalchange.gov/highlights/report-findings/extreme-weather

5. The USDN definition of equity also includes a fourth component of equity—transgenerational equity—which refers to the fair and equal consideration of subsequent generations' needs and rights. However, transgenerational equity was not included in Meridian's analysis, based on consultations with the Kresge senior program officer and because no CREWS projects are focused on or addressing this dimension of equity specifically. Therefore, there was no notable distinction between the projects' treatment of transgenerational equity to analyze. This is not to negate the importance of transgenerational equity in all social and environmental work.

6. Urban Sustainability Directors Network (USDN), *Equity in Sustainability: An Equity Scan of Local Government Sustainability Programs*, September 2014, https://www.usdn.org/uploads/cms/documents/usdn_equity_scan_sept_2014_final.pdf?source=http%3a%2f%2fusdn.org%2fuploads%2fcms%2fdocuments%2fusdn_equity_scan_sept_2014_final.pdf

7. Tate Williams, "How a Foundation's Focus on Cities Made It a Leader in a Changing Environmental Movement," *Inside Philanthropy*, May 29, 2018, https://www.insidephilanthropy.com/home/2018/5/29/how-a-foundations-focus-on-cities-made-it-a-leader-in-a-changing-environmental-movement

8. The Kresge Foundation currently supports capital absorption efforts through a grant to the Center for Community Investment.

9. U.S. Climate Resilience Toolkit, "Take Action," https://toolkit.climate.gov/steps-to-resilience/take-action

10. Alliance for National and Community Resilience, "Benchmarking System," http://www.resilientalliance.org/

11. Intergovernmental Panel on Climate Change (IPCC), *Climate Change and Water, IPCC Technical Paper VI*, 2008, 3, https://www.ipcc.ch/pdf/technical-papers/climate-change-water-en.pdf

12. Flood Forum USA, "About Us," https://www.floodforum.org/about-us/

13. Policy Link, "Infrastructure Equity," http://www.policylink.org/our-work/community/infrastructure

14. Chesapeake Bay Foundation, "Environmental Impact Bonds," http://www.cbf.org/how-we-save-the-bay/programs-initiatives/environmental-impact-bonds.html

15. A water improvement district (WID) is a defined area in which GSI projects can be built and managed to integrate neighborhood revitalization, business, residential investment, and environmental stewardship.

16. Aleka Seville is no longer with re:focus partners. Please contact Shalini Vajjhala, Founder & CEO, for more information about their work.

"Climate change is intrinsically linked to public health, food and water security, migration, peace, and security. It is a moral issue. It is an issue of social justice, human rights and fundamental ethics. We have a profound responsibility to the fragile web of life on this Earth, and to this generation and those that will follow."

– United Nations Secretary-General Ban Ki-moon

americanrivers.org

merid.org

"Water is sacred because it gives life to everything, and without water, there is no life."

– Thunder Rain Woman, Anishinaabe Nation

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Cover Photos: *Top left*: New Orleans family assesses the aftermath of a flooding event in their front yard. Image courtesy of The Trust for Public Land. *Top right*: Street-side planter boxes for capturing stormwater runoff. Image courtesy of Michelle Adams, Meliora Designs. *Center*: February 2017 Community Water Assembly meeting in Milwaukee, with Milwaukee Water Commons. Image courtesy of American Rivers. *Bottom left*: Image courtesy of Shutterstock. *Bottom right*: Ribbon cutting ceremony for green infrastructure project in Peoria, Illinois. Image courtesy of Greenprint Partners (formerly Fresh Coast Capital).