Lessons in Regional Resilience

The San Diego Regional Climate Collaborative

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Annie Bennett*

Case Studies in Regional Collaboration: This report is part of a series of six case studies (http://www.georgetownclimate.org/reports/lessons-in-regional-resilience.html) that explore lessons that are being learned by climate collaboratives from around the United States that are bringing together local governments and other stakeholders at the regional level to both reduce carbon pollution (mitigation) and prepare for the impacts of climate change (adaptation). These case studies explore the following collaboratives:

- The Los Angeles Regional Collabortive for Climate Action and Sustainability in California
- The San Diego Regional Climate Collaborative in California
- The Capital Region Climate Readiness Collaborative in California
- The Sierra Climate Adaptation and Mitigation Partnership in California
- The Southeast Florida Climate Change Compact in Florida
- The King County-Cities Climate Collaboration in Washington State

Each case study explores the history and development, structure and decisionmaking methods, funding sources, roles and initiatives of each of these climate collaboratives. A synthesis report also explores lessons that can be learned by comparing the efforts of each collaborative on climate policy in their regions.

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INTRODUCTION

The San Diego Regional Climate Collaborative (SDRCC) was launched in 2012 as a network designed to support public agencies with preparing for the impacts of climate change and mitigate greenhouse gas emissions. The San Diego region faces a number of threats exacerbated by climate change, including diminishing water supplies, increasing wildfire risks, rising temperatures, and increasing coastal flooding and erosion due to sea-level rise.[1] SDRCC supports local governments and regional agencies across San Diego County to respond to these impacts, reduce emissions, and foster a clean energy and vibrant economy and community.

SDRCC was initially formed by five public agencies (the Cities of Chula Vista and San Diego, the County of San Diego, the Port of San Diego, and the San Diego Association of Governments, or SANDAG); the University of San Diego (USD); the region's energy utility, San Diego Gas & Electric (SDG&E); and The San Diego Foundation (TSDF). SDRCC's primary mission is twofold: to serve as a network for public agencies in the San Diego region where they can share expertise, leverage resources, and advance solutions that facilitate climate change planning; and to raise the profile of the region's leadership through partnerships with academia, nonprofits, businesses, and community leaders.[2]

SDRCC provides a venue for cross-jurisdictional and cross-sectoral dialogue, which has resulted in new and innovative partnerships to help advance climate science, energy efficiency, and more inclusive climate planning processes within the region. The collaborative organizes regular workshops and trainings for local decision-makers on climate-related topics of interest, as well as provides direct technical assistance to jurisdictions in the region. SDRCC is coordinated by a full-time manager and overseen by a governing Steering Committee that makes decisions about the strategic direction of the collaborative.

In addition to local engagement and capacity building, SDRCC helps to ensure that climate leadership actions taking place within the San Diego region are being highlighted and shared locally, as well as with state and national climate practitioners. By leveraging templates, best practices, and innovative ideas for meeting climate mitigation and preparedness goals, the SDRCC is working to build a community of practice and expand local expertise and engagement in addressing climate change. SDRCC also gives the San Diego region a voice at the state level, through its involvement in the Alliance of Regional Collaboratives for Climate Adaptation, or ARCCA. ARCCA provides a forum for SDRCC and other climate collaboratives in California to interact with representatives from state government, helping ensure that state policy related to climate change is informed by local and regional views and actions, and similarly that the regions are aware of developments at the state level that may affect them.

This case study first describes the San Diego region's geography and climate impacts of concern, followed by the history and formation of SDRCC, focusing on key partners and initial motivating factors for creating a collaborative. Next, it provides an overview of the collaborative's current organization, including membership base, governance structure for decision-making and daily administration, and funding sources. Finally, the case study discusses the key roles that SDRCC has evolved to fill, in particular: engaging and coordinating stakeholders, fostering new and cross-sectoral partnerships, building local capacity through trainings and technical assistance, and helping to direct funding for regional projects. Although it focuses primarily on SDRCC's efforts related to climate adaptation, the discussion includes some of the collaborative's initiatives designed to reduce emissions as well. This case study is designed to help other new and evolving adaptation collaboratives learn from SDRCC's experiences using regional collaboration to catalyze and support local adaptation.

THE SAN DIEGO REGION

San Diego County is the second most populous county in California,[3] with over 3 million residents. The County includes 18 municipalities, 10 of which currently participate as members of SDRCC, including the City of San Diego which accounts for over one-third of the county's population.[4] There are also several military installations within the county. Spanning 4,300 square miles, San Diego County includes urban and rural communities and a mixture of terrain including beaches, mountains, and desert.[5] The region is generally temperate year-round climate, but climate change is projected to increase temperatures and change precipitation patterns, which will increase flood, drought, and wildfire risks in the region and threaten natural resources and quality of life.

- *Temperature:* The region is anticipated to see a 4.8 degree Fahrenheit increase by 2050,[6] with a possible seven-fold increase in the number of extreme heat days.[7] Heat waves may also be longer and more humid than they have been in the past; not allow enough cooling at nighttime will put vulnerable residents at greater risk of heat-related illness and death.[8] Plants and wildlife may also be affected by warming and changing precipitation patterns, particularly if these changes occur faster than species are able to adapt.[9]

- *Precipitation:* San Diego is expected to receive less rainfall in the future, with approximately 16 percent fewer rainy days on average.[10] However, the region's rainfall is more likely to come in the form of less frequent but more intense rainstorms, with an average 8 percent more rainfall anticipated during heavy rainstorms,[11] raising the risk of flood events in some areas.

- *Drought and water resources:* Warming trends and changing precipitation patterns will worsen drought conditions in the region and threaten traditional freshwater supplies upon which the region relies, including the Colorado River and Sierra Nevada snowpack that together account for 83 percent of the county's current water supply.[12] Increasing demand for water due to regional growth will require exploring and developing new sources of local water supply and implementing efficiency measures.

- *Wildfire risk:* Wildfire is already a significant risk in San Diego County and Southern California as a whole, causing loss of homes and other economic losses every year.[13] Warming temperatures, drier soils, and less average precipitation may cause the wildfire season to be longer and less predictable in the future, resulting in greater risk to homes and infrastructure, human life, and natural resources.[14] Growth and development patterns suggest that the economic costs of wildfires will continue to increase as well.[15] Decreased air quality from wildfires will also increase incidence of respiratory problems for at-risk residents.[16]
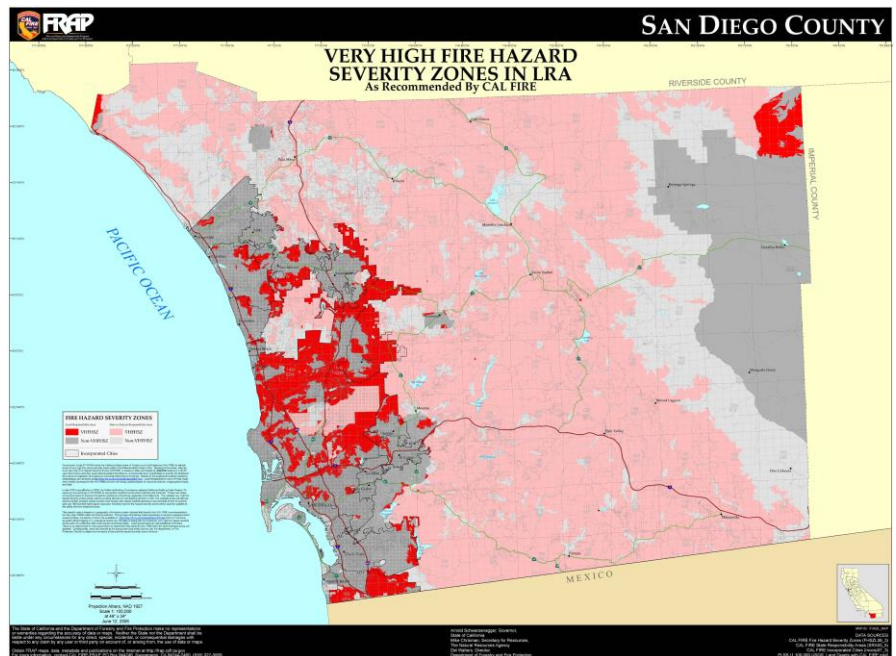

Figure 1: Very High Fire Hazard Severity Zones in San Diego County
(red showing local responsibility and pink showing state or federal responsbility areas).
Credit: CAL FIRE-FRAP (Fire and Resource Assessment Program)

- *Sea-level rise and coastal storms:* Sea-level rise will exacerbate flood risks caused by extreme high tides and coastal storms; the San Diego region expects to experience between 5 and 24 inches of sea-level rise (with an average projection of 12 inches, relative to the year 2000) by 2050.[17] As sea levels rise and existing wetlands lose capacity to buffer against storm surge,[18] coastal flooding will increasingly put the region's infrastructure at risk, including the port and airport, naval bases, highways and railroad tracks.[19]

To help jurisdictions in the region plan for and adapt to these impacts, the San Diego Regional Climate Collaborative was established in 2012 and has since catalyzed new partnerships and helped foster cross-jurisdictional responses to these challenges.

HISTORY AND ORGANIZATION OF SDRCC

The idea to form a collaborative developed as a result of cross-jurisdictional projects on both mitigation (reducing emissions) and adaptation (preparing for impacts) that were supported by The San Diego Foundation (TSDF) and San Diego Gas & Electric (SDG&E), two of the collaborative's founding organizations. Prior to the collaborative's formation, SDG&E was already partnering with several local governments on regional energy efficiency projects.[20] Concurrently, TSDF was supporting the development of a sea-level rise adaptation strategy for the region—one of the first regional strategies—with assistance from ICLEI[21] and with involvement of various local jurisdictions and public agencies in the county, including SANDAG, the Port, the Regional Airport Authority, and the Cities of Chula Vista, Coronado, Imperial Beach, National City, and San Diego.[22] The players involved in these projects recognized the value in regionally sharing strategies and expertise, and took the initiative to create a more permanent forum for this purpose.[23]

In 2012, the County of San Diego, the Port, SANDAG, and the cities of Chula Vista and San Diego established the San Diego Regional Climate Collaborative with TSDF, SDG&E, and the University of San Diego (USD).[24] Seed funding was provided by a grant from TSDF and by SDG&E through its Local Government Energy Efficiency Partnership Program, which works with local governments and nonprofits to promote energy efficiency and conservation and community education and outreach.[25]

The collaborative's first activities focused on supporting the development of climate action plans to reduce emissions at the local level.[26] Before SDRCC formed, greenhouse gas emissions inventories had been completed for all 19 jurisdictions in the region; most of these baseline inventories were funded in part by TSDF and carried out through partnerships between ICLEI and each of the local governments. [27] Climate change mitigation was a logical starting point for SDRCC to engage with local jurisdictions and help maintain the momentum for climate action, as the inventories provided valuable information that could be used in planning efforts. Beginning with mitigation was also appropriate given the purposes served by the SDG&E program that provided initial funding. SDRCC has since added adaptation to its focus areas, and is involved with a number of projects and initiatives to support local adaptation planning.

Energy Efficiency & Mitigation Focused Forum

Adaptation and Developed Governance Structure
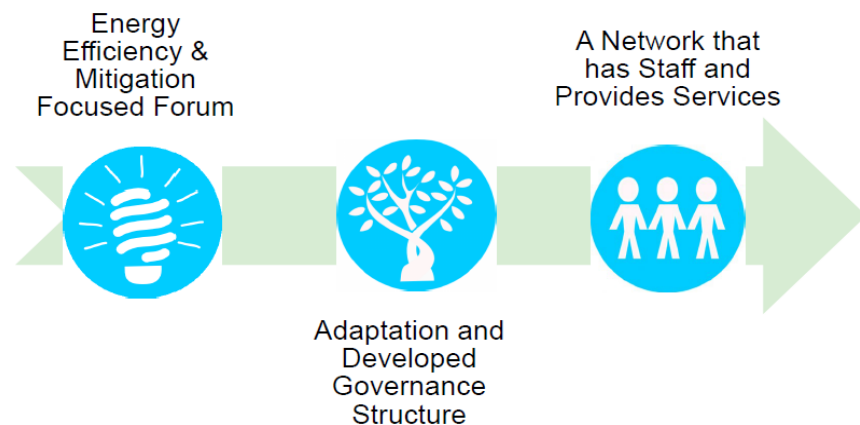
A Network that has Staff and Provides Services

Figure 2: Growth and evolution of the San Diego Climate Collaborative. Source: SDRCC/EPA, Innovative Partnerships Webinar, May 2015.

At the outset, a Steering Committee was established that developed a mission statement and goals for the collaborative, followed by its first governance policy and formal charter adopted in May 2013.[28] A part-time manager was hired in 2013 to assist with further development and expansion of the organization and with administration of SDRCC activities and initiatives.[29] To join SDRCC, local governments and other organizational members must sign the SDRCC charter, which formally states the collaborative's purpose and objectives and also briefly outlines the governance and membership structure. [30] The governance policy sets specifications and responsibilities for the collaborative's leadership (Steering Committee, officers, and subcommittees) and describes requirements and benefits for different types of members (described in more detail in the sections that follow).[31]

Since the collaborative's formation in 2012, the primary target audience for SDRCC's support has been local jurisdictions and other public agencies in the region. SDRCC aims to develop political will and build capacity within existing authorities in the region, without developing a new layer of governance or any formal legal authority to influence policy-making.[32] Certain aspects of SDRCC's organizational structure, as formalized in the charter and governance policy, reflect this goal to support its primary target audience, public agencies.

Membership

Many different types of organizational entities within the region are able to join SDRCC if they demonstrate commitment to addressing climate change and support the collaborative's mission and objectives. Members are organized into three categories based on the type of entity joining the collaborative, which dictates the support (if any) the member must contribute and benefits the member can receive.

- *Public Agency Members:* This category of membership is open only to representatives of the 19 local jurisdictions (18 municipalities and the County) and other public agencies with legal authority in the region,[33] emphasizing the collaborative's primary focus on supporting and engaging decision-makers. There is no fee for public agencies to join the collaborative, and in contrast to the other two membership categories, they are not required to contribute ongoing financial or in-kind support unless they serve also as a Steering Committee member, as described below.[34] As of September 2016, the collaborative has a range of public agency members, including 10 municipalities plus the County, SANDAG (the region's metropolitan planning organization), and the region's port and airport authorities.[35] The collaborative works to involve the remaining jurisdictions and regional authorities either as members or through partnerships and events.[36]

- *Supporting Members:* The second category of membership is offered to academic institutions, utilities, non-profit organizations, and philanthropic organizations within the region that support climate change initiatives in partnership with public agencies. In order to join and maintain membership, supporting members must also contribute some in-kind services or financial support that helps the collaborative achieve its purpose and objectives.[37] The collaborative's supporting members include TSDF, SDG&E, and USD (all founding members), as well as several other universities and nonprofit organizations.[38]

- *Partners:* Finally, the collaborative offers membership as a partner to any other type of organizations that participate in SDRCC projects or programs; generally, this category is designed to encourage business participation, though so far there have not been any formal partner-members in the collaborative.[39]

Public agency members and supporting members are eligible to participate on the Steering Committee, showcase climate-related plans, policies, and programs on the collaborative's website, and participate in networking opportunities with other members.[40] Public agency members alone are also able to use the collaborative's branding on their own site and materials.[41]

Governance and Administration

SDRCC is housed at the University of San Diego (USD), which administers funding on behalf of the collaborative and provides staffing for the collaborative as well.[42] The collaborative's manager oversees daily administration of SDRCC and its initiatives, and organizes meetings and outreach efforts, while the Steering Committee serves as the main decision-making body for the collaborative.[43]

SDRCC preferences both public agencies and the collaborative's founding members (five of which are public agencies) for makeup of the Steering Committee.[44] The founding members (eight in total) are designated as a subset known as the "Standing" Steering Committee, while the remaining seats (up to four) comprise the "Rotating" Steering Committee. Across both Standing and Rotating members, the Committee can have a total of twelve members, with provisions in the governance policy designed to ensure a majority of seats are held by public agencies. The potential makeup of the Committee is indicated in the chart at right.[45] The Steering Committee elects officers, including at a minimum a Chair and Vice Chair, from within its representatives.[46]

As the primary governing committee for the collaborative, the SDRCC Steering Committee members have a number of responsibilities, including seeking and managing funding initiatives, overseeing and approving membership, reviewing performance of the collaborative, and representing the collaborative, among other tasks.[47] Steering Committee members must also contribute financial or in-kind support, or a combination of the two.[48] The Committee generally meets monthly or quarterly to discuss climate-related activities in the San Diego region (both of the collaborative and of other entities), the collaborative's progress in meeting its goals, and opportunities for trainings, education, and funding.[49]

Figure 3: MAKEUP OF SDRCC STEERING COMMITTEE
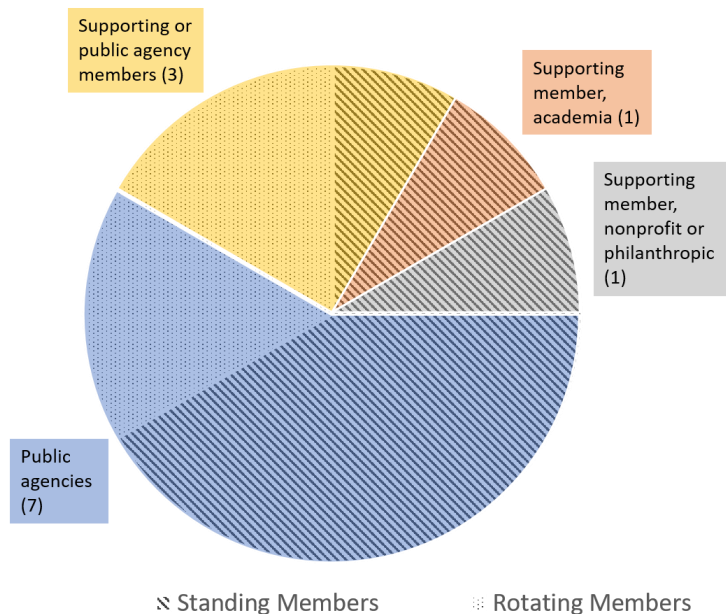(as specified in governance policy).

With approval from the Steering Committee, SDRCC members can establish subcommittees to work on particular goals or projects that do not require participation of the full membership.[50] Subcommittees must be led by at least two SDRCC members, who are responsible for reporting to the Steering Committee (and full membership if warranted) on the subcommittee's progress.

Funding and Support

SDRCC was founded with, and continues to receive, funding from SDG&E's Local Government Energy Efficiency Partnership Programs and from TSDF.[51] Through the Local Government Partnerships program, SDG&E works with local jurisdictions and non-profits to promote energy efficiency and conservation and to provide related education and outreach to the communities.[52] The San Diego Foundation funding that helped found the collaborative was part of a grant from the Kresge Foundation.[53] SDRCC continues to seek grant funding opportunities, both with help from TSDF and by looking to funders outside the region as well.[54]

As the collaborative seeks to engage and support public agencies first and foremost, SDRCC has decided not to require a fee to join or annual dues to remain a public agency member;[55] in this way, the collaborative can attract the participation of more public agency members with limited financial resources. Instead, the Steering Committee made the decision (with the update of the collaborative's governance policy in December 2015) to require at least $5,000 in direct in-kind or financial support to be provided as a requirement of all Steering Committee members.[56]

The membership tiers within SDRCC have also been set up in a way to allow for corporate and business sponsorships of particular workshops, events, projects, or other initiatives.[57]

Finally, the collaborative has more recently managed to secure federal funding to support its efforts to provide technical assistance to local governments in the region. Through USD as its fiscal host, SDRCC received a Coastal Resilience Grant from the National Oceanic and Atmospheric Administration (NOAA) in February 2016, which it will use to help coordinate sea-level rise and coastal flood resilience planning across several jurisdictions.[58]

Figure 4: SDRCC Organizational Structure
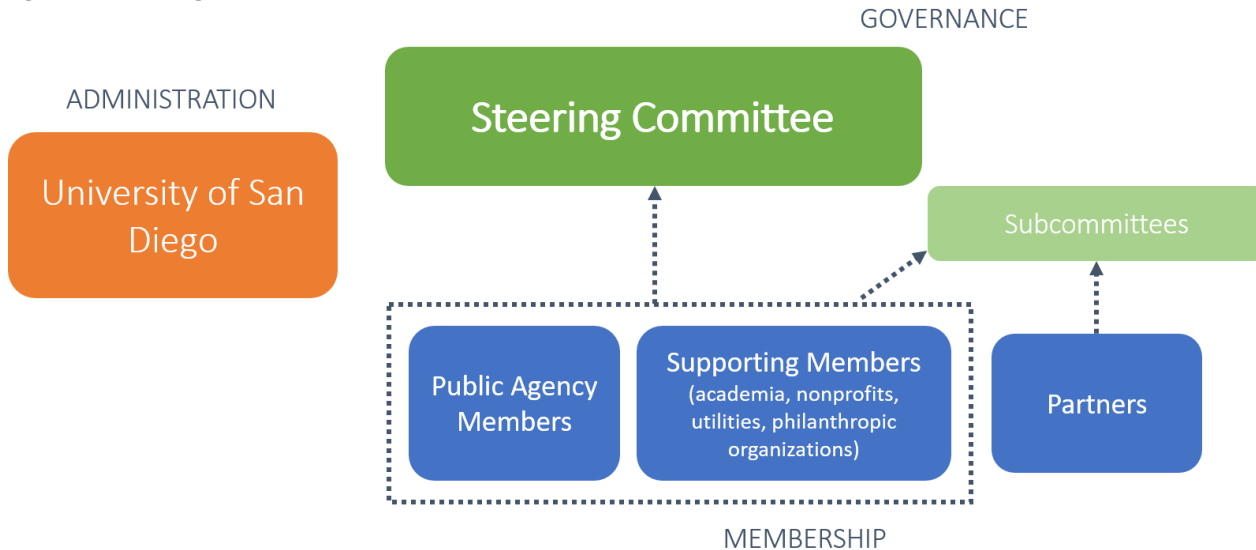
KEY ROLES AND INITIATIVES

SDRCC has filled several roles to support adaptation in the region, including: convening and coordinating among different stakeholders, supporting new cross-sector partnerships and initiatives, building local capacity through trainings and technical assistance, and advising uses for funding to support projects in the region.

Convening & Coordinating Stakeholders

One of SDRCC's objectives is to strategically engage stakeholders to encourage a more effective, coordinated response to climate impacts. SDRCC organizes quarterly network meetings (which are open to stakeholders both within and outside its membership) to highlight local projects; share lessons learned, new tools, and research findings; and identify opportunities to leverage resources. A number of non-member regional authorities and entities, such as the County Water Authority, participate in collaborative activities through these network meetings and other projects and initiatives.[59] These meetings provide opportunities for regular interaction among the members, but also allow non-member agencies and organizations to have a voice in the discussions about responding as a region to climate change.

SDRCC also relies on some of its members that have a regional presence to involve jurisdictions that are not members of the collaborative. Although SDRCC was initially founded with involvement of only three of the region's 18 jurisdictions (two cities and the County government), it has been successful in supporting and bringing in local governments across the region largely because of the extensive networks and relationships brought by its other organizational members, particularly its founding members with a region-wide focus.

- *San Diego Association of Governments (SANDAG):* As the regional planning agency and designated metropolitan planning organization[60] for the San Diego region, SANDAG represents each of the region's 19 local governments.[61] As a member of the collaborative, SANDAG can help to ensure that relevant information reaches non-member jurisdictions and other groups that are not a part of the SDRCC network such as the region's tribal governments, with which SANDAG works closely.[62] SANDAG is a key partner and is leading many of its own ongoing environmental and climate-related initiatives, such as developing the regional energy strategy, preparing energy roadmaps[63] for many of the region's jurisdictions, and supporting planning for electric vehicle infrastructure.[64]

- *Unified Port of San Diego:* The Board of Port Commissioners, which establishes Port policies, is made up of representatives appointed by the city councils of each of the five jurisdictions surrounding the San Diego Bay.[65] The Port has provided opportunities to engage with coastal jurisdictions (particularly on coastal issues) that are not or did not used to be members of the collaborative. For example, the Port helped to bring the five jurisdictions into the planning processes during development of the regional sea-level rise strategy.[66]

- *The San Diego Foundation:* TSDF launched a Climate Initiative[67] in 2006, through which it has since been a major partner with local governments and SDRCC on climate adaptation and mitigation projects throughout the region. One of TSDF's primary roles has been to fund locally relevant research to inform planning and policy-making at the request of local governments in the region.[68] For example, TSDF supported research to catalogue climate impacts to the region and to inventory greenhouse gas emissions.[69] More recently, TSDF worked with Climate Education Partners to develop an educational report, *San Diego, 2050 Is Calling. How will we answer?*[70] The report describes impacts in the region and identifies opportunities for leaders to act to address each impact, many of which recommend cross-jurisdictional coordination. TSDF has also partnered with SDRCC and others to facilitate collaborative events such as workshops and trainings.

Innovative Partnerships and Initiatives

In addition to coordinating stakeholders and providing networking opportunities, SDRCC has also helped build new innovative partnerships in furtherance of specific climate-related goals and initiatives. These partnerships have helped promote the refinement and dissemination of regional climate science and modeling, develop and publicize energy efficiency programs, and open cross-sector dialogue for improved regional planning.

- *Climate Science Alliance:* The Climate Science Alliance – South Coast[71] is a partnership of individuals and organizations focused on sharing ecosystem- and community-based approaches to resilience and promoting adaptation on a regional scale.[72] The Alliance includes partners from tribal, federal, state, and local government, universities and researchers, conservation organizations and foundations, among others. SDRCC, along with the California Department of Fish and Wildlife, the California Landscape Conservation Cooperative, the California Wildlife Foundation, and the Robert and Patricia Switzer Foundation, provided initial support to found the Alliance[73] and continues to help develop the Alliance.[74] The Alliance brings together scientists and natural resource managers with decision-makers to ensure that relevant science informs policy, and that research and conservation efforts are coordinated within a broader context of landscape-scale adaptation.[75] It also works to engage the community and educate children about climate science through art and in classrooms.[76]

- *San Diego Regional Energy Partnership:* SDRCC helps facilitate the San Diego Regional Energy Partnership,[77] a program run by SDG&E, the Cities of San Diego and Chula Vista, the County of San Diego, the Port, and SANDAG. The Partnership directs rate-payer fees to energy efficiency projects in a way that will result in the greatest regional benefit.[78] For example, the Partnership is developing a Zero Net Energy Roadmap to help local governments build and support local markets for zero net energy buildings,[79] and a Regional Energy Mapping initiative that helps identify areas in the region with the most potential for energy efficiency home upgrades to help target marketing efforts.[80] The Partnership is also involved in more direct outreach and

education to community members, such as by organizing workshops that educate homeowners on energy efficiency and connect them with contractors.

- *San Diego County Multi-Jurisdictional Hazard Mitigation Plan:* San Diego County was one of the first regions in California to develop a hazard mitigation plan (HMP) on a regional basis. The first multi-jurisdictional HMP for the San Diego region was completed in 2004.[81] In planning to update the HMP[82] over the course of 2014-2015, the County worked with ICLEI to incorporate consideration of how climate change will exacerbate the region's risks from natural hazards such as extreme heat, drought, and coastal flooding.[83] SDRCC supported this process by bringing a wider variety of stakeholders to the table, including scientists, public health officials, and others that are addressing climate change in related policies and plans.[84] Many of the service districts in the region (e.g. fire and water districts) cross jurisdictions and operate at different geographic scales, which can complicate the planning process. SDRCC helped to foster a more integrated regional approach by bringing these various agencies together with the County Office of Emergency Services, which was leading development of the HMP, to engage in cross-sector dialogue.[85] The HMP update is one example of how SDRCC is piloting new partnerships for addressing climate change across sectors that have not typically collaborated.

Local Capacity Building: Trainings, Workshops, & Technical Assistance

The collaborative also works to build the capacity of its members more directly in a variety of ways. Periodically, the SDRCC manager reaches out to the members, as well as jurisdictions considering becoming members, to learn about their needs and priorities.[86] This information is used to make relevant connections across jurisdictions and sectors, and to identify opportunities for SDRCC to organize or facilitate trainings and workshops that will be most helpful to members.[87] For example, the collaborative has coordinated with entities including the National Oceanic and Atmospheric Administration (NOAA), the Tijuana River National Estuarine Research Reserve (TRNERR, a member of the collaborative)[88], USC Sea Grant, TSDF, and the California Coastal Conservancy to provide regional workshops.

- *Green Infrastructure Workshop:* In April 2015, SDRCC partnered with TRNERR and NOAA to provide a free training for local governments on using green infrastructure to increase climate resilience and address stormwater issues.[89] Speakers at the workshop discussed the benefits of green infrastructure for mitigating climate impacts, appropriate uses in the San Diego region, best practices and policies to promote green infrastructure, and funding sources for projects.[90] The workshop also allowed practitioners including stormwater managers and engineers, watershed managers, land-use planners, and public-works professionals to network and identify opportunities to collaborate on green infrastructure projects.[91]

- *Planning & Facilitating Stakeholder Meetings Workshop:* In February 2015, SDRCC and TRNERR partnered to host a training on planning and facilitating multiple-stakeholder processes.[92] The training was provided by NOAA's Office for Coastal Management and was designed to help participants develop skills and tools to balance different stakeholder interests and encourage problem solving in complex planning processes, such as Climate Action Planning.

- *San Diego Sea Level Rise & Coastal Impacts Workshops:* SDRCC led San Diego-based outreach related to the Coastal Storm Modeling System (CoSMoS) modeling project,[93] a USGS-led project to develop a detailed sea-level-rise and coastal-storm model for the southern California coast, including the San Diego region.[94] As part of the effort to educate local governments in the region about the model and how to apply it in local coastal planning, SDRCC partnered with USC Sea Grant, TSDF, TRNERR, and the California Coastal Conservancy to host 2 workshops (October 2014 and November 2015).[95]

- *Climate Adaptation for Coastal Communities Workshop:* In October 2013, SDRCC co-hosted a multi-day coastal adaptation training with TRNERR through NOAA's Office for Coastal Management.[96] The workshop

provided training on understanding climate science and impacts, conducting vulnerability assessments, evaluating and implementing adaptation strategies, and communicating about climate change.[97]

In addition to helping SDRCC identify needs and opportunities for trainings and workshops, the SDRCC manager's member engagement also helps local jurisdictions identify areas where their own needs could be met with direct technical assistance.

- *CivicSpark:* The CivicSpark program, which is a Governor's Initiative of AmeriCorps launched by the Local Government Commission,[98] assigns AmeriCorps members across 9 regions to help local governments implement projects and strategies to reduce emissions, increase clean energy, adapt to climate impacts, and build sustainable communities.[99] SDRCC was the 2015 regional partner for the CivicSpark program in the San Diego region, and coordinated with local governments to assist them in the application process to secure support from CivicSpark members. The program seeks to build capacity of local governments on climate change and sustainability through research, planning and implementation activities, and volunteer engagement.[100] For example, CivicSpark members helped local governments in the San Diego region with completing greenhouse gas inventories, comparing and analyzing climate action plans, developing permitting guidance for installing electric vehicle infrastructure such as charging stations, and promoting alternative transportation.[101] CivicSpark members provided needed support for cities with fewer resources or less political support. SDRCC helped cities secure the assistance of CivicSpark members through the program, housed the members at USD, and managed and mentored the CivicSpark members throughout their service.

- *Climate Action Plans:* SDRCC also expects to assist local governments with incorporating new data into vulnerability assessments and Climate Action Plans.[102] Many of the region's municipalities began climate action planning by completing greenhouse gas emissions inventories and emissions reduction goals.[103] They looked to SDRCC for help identifying existing resources and technical assistance. SDRCC is also playing a similar role helping local governments identify and take advantage of relevant trainings, resources, and volunteers or other support to incorporate adaptation into these planning processes. Local governments will look to SDRCC to provide or facilitate training and technical assistance on how to utilize the new information and modeling tools.[104]

- *Coastal Resilience Planning:* SDRCC is leading the Resilient Coastlines Project of Greater San Diego, which aims to connect and coordinate local sea-level rise initiatives across the region.[105] The project will aim to fill any knowledge gaps that prevent resilience planning and implementation, and conduct legal and cost benefit analysis of coastal protection strategies that can be incorporated into land use and capital improvement programs. SDRCC received a $689,500 grant from NOAA's Regional Coastal Resilience Grant Program[106] to direct the project, and several local jurisdictions also provided match funding that they had received through State and TSDF grants to assess vulnerabilities and update their local coastal plans.[107] The Resilient Coastlines Project builds on the efforts of a regional Sea Level Rise Working Group that SDRCC facilitated quarterly through 2015.[108]

Funding for Project Implementation

In addition to receiving funding for the collaborative's own operations and events, SDRCC has begun to play a role in strategically advising funding for climate resilience projects in the San Diego area. In February 2015, SDRCC partnered with TSDF to announce a grant opportunity for projects that would advance community adaptation efforts and help put the *San Diego 2050* report (as referenced above) into action.[109] TSDF and SDRCC reviewed project proposals and announced six awards in July 2015, totaling $311,500; examples of the supported projects include:

- *Expanding the Home Energy Coach Program:* The Center for Sustainable Energy received $42,000 to expand its home energy advising program (the Home Energy Coach Program) by providing water and energy education for municipal employees in additional jurisdictions. This will help expand broaden understanding

and awareness of drought and energy issues throughout the region.

- *Building a water reuse framework:* Chula Vista received $67,500 to expand water reuse and conservation efforts. Extensive public engagement and economic analysis will help support the development of this water reuse framework.

- *Supporting regional wildfire preparedness:* The Resource Conservation District of Greater San Diego County received $42,000 to help update Community Wildfire Protection Plans in the region. The grant will also allow the district to host workshops on long-term fire preparedness for residents in fire-prone areas.[110]

Preference was given to projects that would involve cross-jurisdictional or cross-agency collaboration, community engagement in decision-making or implementation, sharing of lessons learned through SDRCC or other means, and utilization of the CivicSpark program and AmeriCorps members.[111] Many of the selected projects are either of a regional nature (e.g. wildfire preparedness) or may develop frameworks and programs that can be scaled up at a regional level (e.g. the water reuse framework).

In July 2016, SDRCC partnered with TSDF again to launch a grant cycle to fund high-visibility pilot projects that leverage smart technology to build resilience for the San Diego region's water supply. The 'Smart Cities and Water Solutions' grant cycle funded two public-private partnerships at $80,000 each:

- *City of Solana Beach (Partner: Cleantech San Diego), "Smart Water Monitoring: Empowering Water Knowledge, Conservation and Security":* This grant will establish a public-private partnership between the City of Solana Beach, Santa Fe Irrigation District, and six private partners to deploy smart monitoring units that will provide a greater understanding of water use and measurable conservation efforts.

- *Airport Authority (Partner: Cleantech San Diego), "Condensate Capture and Reuse at San Diego International Airport":* As part of a broader sustainability initiative, San Diego County Regional Airport Authority has committed to pursuing a range of water capture and reuse activities to offset the nearly 80 percent of airport water uses that do not require potable water. This public-private partnership will implement projects to increase the reuse of condensate from air handling units across multiple facilities throughout the Airport campus, and can serve as a model for other organizations and agencies.

CONCLUSION

The San Diego Regional Climate Collaborative has been structured and has adopted roles within the region that best help further its mission of serving public agencies and raising the profile of the region's leadership on climate change. Other regions can learn from this example as they develop their own goals for addressing climate change at a regional scale.

Early on, the founding entities of SDRCC scoped the goals and target audience for the collaborative, deciding to center it around building the capacity of public agencies in the region to plan for and address climate change impacts. With this goal in mind, SDRCC first and foremost targets its outreach to jurisdictions and other public authorities. Much of the SDRCC Manager's upfront work has involved interviewing local governments in the region about their needs, which helps inform how the collaborative should direct its resources for trainings and workshops, for example. In this way, the collaborative can focus on building planning capacity to address common concerns in the region, like stormwater management and green infrastructure, and coastal resilience. The collaborative's approach has helped maximize interest and participation of local jurisdictions; some of the jurisdictions that were not initial members were still actively involved in the collaborative's events and meetings, which allowed them to see the benefits of formally joining the collaborative.

But by not limiting the collaborative's membership exclusively to public entities, SDRCC also creates opportunities for public entities to collaborate with universities, nonprofits, utilities, and others, and to benefit from the resources and expertise that they share. One of SDRCC's most prominent successes has been in the ability to foster new partnerships and build on the region's existing networks of public entities and other organizations. Through members like SANDAG, the Port, SDG&E, and TSDF, which already have a regional presence, SDRCC can better reach non-member public entities. SDRCC also works to identify opportunities for new strategic partnerships, and to help create connections across sectors and between groups that do not typically collaborate, for example through involvement in the HMP update process and the Climate Science Alliance.

These successes have also helped the collaborative realize another aspect of its mission: to showcase the region's leadership in efforts to reduce emissions and prepare for the impacts of climate change. SDRCC increases its visibility at the state level through its involvement in ARCCA, which offers regular opportunities to engage with state agencies, but the collaborative has also been recognized nationally for its achievements. In February 2015, the EPA awarded SDRCC a national Climate Leadership Award for Innovative Partnerships, recognizing the collaborative's leadership and innovation in creating a broad network of stakeholders, building capacity of public agency staff, supporting members in setting emissions reduction targets, and supporting innovative projects and efforts to incorporate adaptation into regional planning processes.[112] Increasing visibility for the collaborative's and its members' climate action achievements can help SDRCC attract new members and partners, and new funding sources – all of which will benefit the collaborative as it evolves and takes on new roles in the region.

ENDNOTES

*This report was written by Annie Bennett with review and editing support from Jessica Grannis. Annie Bennett is an Institute Associate, and Jessica Grannis is the Adaptation Program Manager, for the Georgetown Climate Center.

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[1] SAN DIEGO REGIONAL CLIMATE COLLABORATIVE, About Us, http://www.sdclimatecollaborative.org/the-collaborative/.

[2] SAN DIEGO REGIONAL CLIMATE COLLABORATIVE, About Us, http://www.sdclimatecollaborative.org/the-collaborative/.

[3] SAN DIEGO COUNTY HEALTH & HUMAN SERVICES AGENCY, "Geography," http://www.sandiegocounty.gov/hhsa/statistics_geography.html.

[4] SAN DIEGO ASSOCIATION OF GOVERNMENTS, "San Diego Region City/County Population and Housing Estimates 1/1/2010," available at: http://www.sandag.org/uploads/publicationid/publicationid_485_637.pdf.

[5] SAN DIEGO COUNTY HEALTH & HUMAN SERVICES AGENCY, "Geography," http://www.sandiegocounty.gov/hhsa/statistics_geography.html.

[6] CLIMATE EDUCATION PARTNERS, *San Diego, 2050 Is Calling. How Will We Answer?*, 8, available at: http://catcher.sandiego.edu/items/usd/2050.pdf (hereafter CEP, *San Diego 2050*).

[7] CEP, *San Diego 2050* at 18. The estimated seven-fold increase in extreme heat days per year is compared to the pre-2000 historical average.

[8] CEP, *San Diego 2050* at 8, 18.

[9] CEP, *San Diego 2050* at 16.

[10] CEP, San Diego 2050 at 8.

[11] CEP, San Diego 2050 at 8.

[12] CEP, *San Diego 2050* at 10.

[13] CEP, *San Diego 2050* at 14. The average homes lost annually to wildfires in Southern California has increased from 500 over the years 1950 through 2000, to 1,000 homes annually since 2000. The Cedar Fire of 2003 and the Witch Creek Fire of 2007, both of which occurred in San Diego County, together caused over $4.5 billion in costs and damages, with additional impacts not captured including workdays lost and business shutdowns.

[14] CEP, *San Diego 2050* at 14.

[15] CEP, *San Diego 2050* at 14. Sprawling growth has increased the difficulty and costs of protecting lives and property, pointing to the need for more integrated land use planning and fire risk assessment as wildfire conditions worsen in the future. CEP, *San Diego 2050* at 15 (quote from Thom Porter, Assistant Region Chief of CALFIRE Southern Region).

[16] CEP, *San Diego 2050* at 18.

[17] CEP, *San Diego 2050* at 12.

[18] CEP, *San Diego 2050* at 16.

[19] CEP, *San Diego 2050* at 12.

[20] Interview with Laura Engeman, Manager of the San Diego Regional Climate Collaborative, August 6, 2014 (hereafter "Engeman Interview").

[21] ICLEI – Local Governments for Sustainability is an organization that offers membership and support to local governments in the United States and around the world to help them improve local sustainability, reduce emissions, and increase resilience to climate change impacts. *See* ICLEI – LOCAL GOVERNMENTS FOR SUSTAINABILITY, Who We Are, http://icleiusa.org/about-us/who-we-are/.

[22] Engeman Interview; *See* ICLEI- LOCAL GOVERNMENTS FOR SUSTAINABILITY, "Sea Level Rise Adaptation Strategy for San Diego Bay: Executive Summary," January 2012, available at http://icleiusa.org/wp-content/uploads/2015/08/San-Diego-Sea-Level-Rise.pdf.

[23] Engeman Interview.

[24] SAN DIEGO REGIONAL CLIMATE COLLABORATIVE, Press Release: "US EPA Honors San Diego Regional Climate Collaborative With National Award" (February 25, 2015), available at: http://sdclimatecollaborative.org/wp-content/uploads/2015/02/2015-EPA-Award-Climate-Collab-release_FINAL.pdf.

[25] SAN DIEGO REGIONAL CLIMATE COLLABORATIVE, About Us, http://sdclimatecollaborative.org/the-collaborative/. SDG&E, Local Government Partnerships, http://www.sdge.com/our-commitment/energy-efficiency-partnership-programs/local-government-partnerships.

[26] National Adaptation Forum Session: "Building Community Resiliency From the Ground Up: The San Diego Regional Climate Collaborative's Role as a Catalyst for Adaptation Actions" (May 14, 2015) (hereafter "NAF Session").

[27] The Greenhouse Gas Inventory Project was a joint effort between ICLEI and 17 jurisdictions in the county: the County and all cities except for the Cities of Chula Vista and San Diego, which had already completed their own baseline emissions inventories. The 17 inventories were funded by TSDF's Climate Initiative and Kaiser Permanente. *See* SAN DIEGO FOUNDATION, *Understanding the San Diego Region: Climate Action Planning Progress in the San Diego Region*, 19, available at http://issuu.com/thesandiegofoundation/docs/climateactionplanning?e=5545791/1065411.

[28] Engeman Interview.

[29] ALLIANCE OF REGIONAL COLLABORATIVES FOR CLIMATE ADAPTATION, Regional Adaptation Collaborative Toolkit, Element 7: Secure Initial Funding (Tools & Resources), available at http://www.arccacalifornia.org/toolkit/element7/.

[30] SAN DIEGO REGIONAL CLIMATE COLLABORATIVE, Charter, provided by Laura Engeman, Manager of the San Diego Regional Climate Collaborative (hereafter "SDRCC Charter").

[31] SAN DIEGO REGIONAL CLIMATE COLLABORATIVE, Governance Policy (December 2015), provided by Laura Engeman, Manager (hereafter "SDRCC Governance Policy"). SDRCC adopted its first version of the Governance Policy in May 2013, and most recently amended it in December 2015.

[32] ARCCA all-member meeting, June 6, 2014; Engeman interview.

[33] SDRCC Governance Policy at 2-3.

[34] Engeman Interview; SDRCC Governance Policy at 3.

[35] SAN DIEGO REGIONAL CLIMATE COLLABORATIVE, Members, http://www.sdclimatecollaborative.org/the-collaborative/our-members/. Member cities as of September 2016 include Carlsbad, Chula Vista, Del Mar, Encinitas, Imperial Beach, National City, Oceanside, Poway, San Diego, and Solana Beach. SANDAG, another public agency member, is the regional planning agency and federally-designated Metropolitan Planning Organization (MPO) for the San Diego County region. It is responsible for developing regional plans and obtaining and allocating resources to local jurisdictions. *See* SAN DIEGO ASSOCIATION OF GOVERNMENTS, About SANDAG, http://www.sandag.org/index.asp?fuseaction=about.home.

[36] NAF Session. Local nonprofits have also engaged in outreach to their jurisdictions to encourage them to formally join the collaborative and engage in regional climate-related initiatives. The decision to join SDRCC is unique to each jurisdiction; in some cases, the relevant staff may join on behalf of the city, whereas in other cases city staff has sought formal approval from the city council before signing the charter. Engeman Interview.

[37] SDRCC Governance Policy at 3. Financial or in-kind support must be approved by the Steering Committee.

[38] The collaborative's current membership, including public agencies and supporting members, is reflected on the membership page. SAN DIEGO REGIONAL CLIMATE COLLABORATIVE, Members, http://www.sdclimatecollaborative.org/the-collaborative/our-members/.

[39] SDRCC Governance Policy at 3; Engeman Interview. Partners have sponsorship opportunities and are invited to participate in SDRCC events and learning opportunities with other members. SDRCC Governance Policy at 3.

[40] SDRCC Governance Policy at 2-3.

[41] SDRCC Governance Policy at 3.

[42] Engeman Interview. USD also provides the collaborative manager with an office, administrative support and student interns to support the collaborative activities.

[43] The charter also outlines the basic features of the Steering Committee, including standing members and provisions for a Chair and Vice Chair. The details of decision-making and the Steering Committee's and officers' responsibilities and selection are specified in the governance policy.

[44] *See* SDRCC Governance Policy at 1. The Steering Committee can have up to twelve members, seven of which must come from public agencies, one from academia, one from a nonprofit or philanthropic organization, and up to three from other supporting members or additional public agency members. The Standing portion of the Committee comprises eight total seats designated for the founding entities of the collaborative, five of which are for public agencies. The SDRCC's founding members are: the cities of Chula Vista and San Diego, the County of San Diego, the Port of San Diego, SANDAG, SDG&E, the University of San Diego, and TSDF. Up to two Rotating Steering Committee members can be voted in each year to serve two-year terms; applications are reviewed by the remainder of the Steering Committee based on relevance to the collaborative's purpose and objectives and Steering Committee responsibilities. As of September 2016, the Rotating members of the Committee include the Tijuana River National Estuarine Research Reserve and the San Diego Airport Authority. The collaborative's manager (who is based at USD) also sits on the Steering Committee. SAN DIEGO REGIONAL CLIMATE COLLABORATIVE, Steering Committee, http://sdclimatecollaborative.org/the-collaborative/steering-committee/.

[45] SDRCC Governance Policy at 1-2.

[46] SDRCC Governance Policy at 2. Officers serve two-year terms and are elected by a majority vote of the committee. The Chair holds the primary responsibility for representing SDRCC at events and meetings, serving as the point of contact for media and other outreach, and organizing and leading meetings. The Vice Chair, in addition to carrying out the duties of the Chair, if he or she is unavailable, provides guidance on design and content of the SDRCC website and coordinates and monitors staffing needs and responsibilities. As of September 2016, the City of San Diego's representative serves as the Chair, and the Tijuana River National Estuarine Research Reserve's representative serves as Vice Chair. SAN DIEGO REGIONAL CLIMATE COLLABORATIVE, Steering Committee, http://sdclimatecollaborative.org/the-collaborative/steering-committee/.

[47] SDRCC Governance Policy at 2. To take formal actions as a collaborative, the Steering Committee operates by simple majority vote.

[48] SDRCC Governance Policy at 2.

[49] SAN DIEGO REGIONAL CLIMATE COLLABORATIVE, Steering Committee, http://sdclimatecollaborative.org/the-collaborative/steering-committee/.

[50] SDRCC Governance Policy at 3.

[51] SAN DIEGO REGIONAL CLIMATE COLLABORATIVE, About Us, http://www.sdclimatecollaborative.org/the-collaborative/.

[52] SAN DIEGO GAS & ELECTRIC, Local Government Partnerships, http://www.sdge.com/our-commitment/energy-efficiency-partnership-programs/local-government-partnerships. The SDG&E funding comes from ratepayers; local governments help decide where the funding is used, with annual approval of SDG&E and ultimately the California Public Utilities Commission.

[53] Engeman Interview.

[54] Engeman Interview.

[55] Engeman Interview.

[56] Engeman Interview; SDRCC Governance Policy at 2.

[57] Engeman Interview.

[58] SAN DIEGO REGIONAL CLIMATE COLLABORATIVE, Climate Collaborative receives $689,500 federal grant for protecting region's coastline, February 4, 2016, http://sdclimatecollaborative.org/wp-content/uploads/2016/02/FINAL_NOAA_CC_PressRelease.pdf.

[59] Engeman Interview.

[60] Metropolitan Planning Organizations (MPOs) are federally required and designated for urban areas with over 50,000 people, as determined by each decennial census. The MPO is responsible for regional transportation planning and policy-making as a condition of receiving federal funding for projects. *See* U.S. DEPARTMENT OF TRANSPORTATION, Transportation Planning Capacity Building: Metropolitan Planning Organization Database, http://www.planning.dot.gov/mpo.asp.

[61] SAN DIEGO ASSOCIATION OF GOVERNMENTS, About SANDAG, http://www.sandag.org/index.asp?fuseaction=about.home.

[62] NAF Session.

[63] SANDAG's development of energy roadmaps is in partnership with SDG&E through a Local Government Energy Efficiency Partnership. The roadmaps will include information for each SANDAG member agency to address energy efficiency and renewable energy, as well as other emissions reduction and sustainability measures for buildings, transportation, and land use decision. *See* SAN DIEGO GAS & ELECTRIC, San Diego Association of Governments, http://www.sdge.com/our-commitment/local-government-partnerships/san-diego-association-governments.

[64] NAF Session.

[65] These jurisdictions include Chula Vista, Coronado, Imperial Beach, National City, and San Diego (city). San Diego's city council appoints three Board Commissioners while each of the other cities' councils appoint one. *See* UNIFIED PORT OF SAN DIEGO, Commissioner Profiles, http://www.portofsandiego.org/commissioner-profiles.html. As of September 2016, four of these five cities are now members of the collaborative.

[66] NAF Session.

[67] TSDF's Climate Initiative was launched in 2006 to engage local government, nonprofits and businesses on climate change mitigation and adaptation. *See* Testimony of Emily Young to the Little Hoover Commission, 1, October 22, 2013, http://www.lhc.ca.gov/studies/activestudies/climate%20change%20adaptation/Testimony%20Oct%202013/YoungOct2013.pdf (hereafter "Young Testimony").

[68] Young Testimony at 2.

[69] Young Testimony at 2.

[70] UNIVERSITY OF SAN DIEGO, "San Diego, 2050 Is Calling. How will we answer?," www.sandiego.edu/2050/.

[71] The Climate Science Alliance – South Coast was originally formed as the "San Diego Climate Science Alliance." Although San Diego still serves as the center of the Alliance's network, the name was changed to better reflect the diversity of projects and partners, which span the entire south coast ecoregion from Santa Barbara down through Baja California, Mexico. *See* CLIMATE SCIENCE ALLIANCE – SOUTH COAST, About Us, http://www.climatesciencealliance.org/about-us.

[72] NAF Session.

[73] NAF Session.

[74] SDRCC's Manager participated on the Climate Science Alliance's "Vision Team," a team of 21 individuals representing state, federal, and local government, universities, military, nonprofits, partnerships, and foundations that was responsible for developing the Alliance's strategic plan and governance structure. The Vision Team was replaced in 2016 with a permanent Advisory Team and working group structure. *See* CLIMATE SCIENCE ALLIANCE – SOUTH COAST, Organization and Governance Structure, available at http://media.wix.com/ugd/3687d6_9263a8a9e02744f199297aa313846aaf.pdf.

[75] CLIMATE SCIENCE ALLIANCE – SOUTH COAST, About Us, http://www.climatesciencealliance.org/about-us. The Alliance supports collaborative climate science research, and builds capacity by sharing best practices and information about activities and trainings within the region.

[76] *See* CLIMATE SCIENCE ALLIANCE, Summer Newsletter (July 2015), available at http://media.wix.com/ugd/3687d6_bf2ed6eda28540dc99fbc7f3d707cbe5.pdf.

[77] *See* UNIFIED PORT OF SAN DIEGO, "Port Salutes San Diego Regional Climate Collaborative on EPA Award," Feb. 25, 2015, https://www.portofsandiego.org/environment/3832-port-salutes-san-diego-regional-climate-collaborative-on-epa-award.html.

[78] *See* SAN DIEGO REGIONAL CLIMATE COLLABORATIVE, San Diego Regional Energy Partnership, http://sdclimatecollaborative.org/project/san-diego-regional-energy-partnership/.

[79] SAN DIEGO REGIONAL ENERGY PARTNERSHIP, Zero Net Energy Roadmap for Local Governments, http://energycenter.org/zne.

[80] SAN DIEGO REGIONAL ENERGY PARTNERSHIP, Home Energy Upgrade Potential Map – San Diego Region, http://energycenter.org/remp-sd.

[81] SAN DIEGO COUNTY OFFICE OF EMERGENCY SERVICES, Multi-jurisdictional Hazard Mitigation Plan, http://www.sandiegocounty.gov/oes/emergency_management/oes_jl_mitplan.html.

[82] However, as of a June 2016 update, the California Governor's Office of Emergency Services indicates that San Diego County's HMP is expired (*see* CALIFORNIA GOVERNOR'S OFFICE OF EMERGENCY SERVICES, Local Hazard Mitigation Program, http://www.caloes.ca.gov/cal-oes-divisions/hazard-mitigation/hazard-mitigation-planning/local-hazard-mitigation-program), and as of September 2016, there is no draft or final updated plan available on the County's website. *See* SAN DIEGO COUNTY OFFICE OF EMERGENCY SERVICES, Multi-Jurisdictional Hazard Mitigation Plan Update, http://www.sandiegocounty.gov/oes/emergency_management/oes_jl_mitplan.html (last visited October 4, 2016).

[83] *See* ICLEI-USA, Report from San Diego County Multi-Jurisdictional Hazard Mitigation Plan Update Training Workshop #1: Climate Change and Hazards in San Diego (March 2014), available at http://icleiusa.org/wp-content/uploads/2015/08/San-Diego-HMP-Training-Workshop-Report.pdf; UNIFIED PORT OF SAN DIEGO, "Port Salutes San Diego Regional Climate Collaborative on EPA Award," Feb. 25, 2015, https://www.portofsandiego.org/environment/3832-port-salutes-san-diego-regional-climate-collaborative-on-epa-award.html.

[84] SAN DIEGO REGIONAL CLIMATE COLLABORATIVE, San Diego County's 2015 Hazard Mitigation Plan Update, http://sdclimatecollaborative.org/project/san-diego-countys-2015-hazard-mitigation-plan-update/; NAF Session; Engeman Interview.

[85] SAN DIEGO REGIONAL CLIMATE COLLABORATIVE, San Diego County's 2015 Hazard Mitigation Plan Update, http://sdclimatecollaborative.org/project/san-diego-countys-2015-hazard-mitigation-plan-update/; Engeman Interview.

[86] Engeman Interview.

[87] Engeman Interview.

[88] TRNERR is part of the National Estuarine Research Reserve System (NERRS), a network of protected estuaries developed for the purpose of long-term research, education, and stewardship. Through a state-federal partnership between NOAA and California State Parks, TRNERR is responsible for preserving, protecting, and managing resources of the Tijuana River Estuary in Southern California. *See* TIJUANA RIVER NATIONAL ESTUARINE RESEARCH RESERVE, Overview, http://trnerr.org/about/overview/. Specifically, the Coastal Training Program has partnered with the SDRCC to provide Collaborative members training and technical assistance, connecting local and regional decision-makers with science-based information and tools. *See* TIJUANA RIVER NATIONAL ESTUARINE RESEARCH RESERVE, Coastal Training, http://trnerr.org/coastal_training/.

[89] SAN DIEGO REGIONAL CLIMATE COLLABORATIVE, Green Infrastructure in the San Diego Region, http://sdclimatecollaborative.org/project/green-infrastructure-in-the-san-diego-region/.

[90] *Id.*; SAN DIEGO REGIONAL CLIMATE COLLABORATIVE, "Introducing Green Infrastructure: Defining Green Infrastructure," available at http://sdclimatecollaborative.org/wp-content/uploads/2015/05/Green-Infrastructure-Definitions-FINAL.pdf; SAN DIEGO REGIONAL CLIMATE COLLABORATIVE, "Benefits of Using Green Infrastructure to Prepare for Climate Change," available at http://sdclimatecollaborative.org/wp-content/uploads/2015/05/GI-benefits_final.pdf; SAN DIEGO REGIONAL CLIMATE COLLABORATIVE, "Green Infrastructure Financing Opportunities," available at http://sdclimatecollaborative.org/wp-content/uploads/2015/05/Green-Infrastructure_FundingOpps_Final.pdf;

[91] SAN DIEGO REGIONAL CLIMATE COLLABORATIVE, Green Infrastructure in the San Diego Region, http://sdclimatecollaborative.org/project/green-infrastructure-in-the-san-diego-region/.

[92] TIJUANA RIVER NATIONAL ESTUARINE RESEARCH RESERVE, Training Workshops, http://trnerr.org/past-ctp-workshop-events/.

[93] NAF Session.

[94] Hart, Grifman, & Mann, "San Diego Regional SLR & Coastal Impacts Planning Workshop: Overview of CoSMoS and Sea Level Rise Models & Tools" (Presentation), available at http://dornsife.usc.edu/assets/sites/291/docs/USCSG_CoSMoSPres_SDwrkshpWEB.pdf.

[95] UNIVERSITY OF SOUTHERN CALIFORNIA, "San Diego Sea Level Rise & Coastal Impacts Workshop," (Oct. 30, 2014), http://dornsife.usc.edu/uscseagrant/sandiego-workshop/. The workshops focused on explaining CoSMoS to local decision-makers and community members, and how this latest coastal storm and sea level rise information may be applicable to local planning efforts. The workshops also covered the regulatory and policy frameworks related to sea-level rise, and training on adaptive management strategies.

[96] TIJUANA RIVER NATIONAL ESTUARINE RESEARCH RESERVE, Training Workshops, http://trnerr.org/past-ctp-workshop-events/.

[97] TIJUANA RIVER NATIONAL ESTUARINE RESEARCH RESERVE, "Climate Adaptation for Coastal Communities: Course Agenda," (Oct. 1-3, 2013), available at http://trnerr.org/wp-content/uploads/2011/07/CACC_agenda.pdf.

[98] The Local Government Commission is a nonprofit focused on helping local governments improve sustainability; the LGC facilitates conferences and workshops, produces guidebooks and other information, and communicates with members about grants and other opportunities. *See* LOCAL GOVERNMENT COMMISSION, About the LGC, http://www.lgc.org/about.

[99] LOCAL GOVERNMENT COMMISSION, CivicSpark, http://civicspark.lgc.org/.

[100] LOCAL GOVERNMENT COMMISSION, CivicSpark, http://civicspark.lgc.org/.

[101] SAN DIEGO REGIONAL CLIMATE COLLABORATIVE, CivicSpark – An AmeriCorps Program, http://sdclimatecollaborative.org/solutions/building-capacity-with-americorps/ .

[102] Engeman Interview.

[103] *See* SAN DIEGO REGIONAL CLIMATE COLLABORATIVE, Climate Action Planning, http://sdclimatecollaborative.org/project/greenhouse-gas-baseline-inventories/.

[104] Engeman Interview.

[105] Resilient Coastlines Project of Greater San Diego, http://www.resilientcoastlines.org/.

[106] NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, NOAA Regional Coastal Resilience Grants, https://www.coast.noaa.gov/resilience-grant/.

[107] Resilient Coastlines Project, Climate Collaborative Receives $689,500 Federal Grant for Protecting Region's Coastline, February 4, 2016, http://www.resilientcoastlines.org/single-post/2016/02/04/Climate-Collaborative-Receives-689500-Federal-Grant-for-Protecting-Regions-Coastline-1. Participating jurisdictions include Oceanside, Carlsbad, Encinitas, Solana Beach, Del Mar, San Diego, and Imperial Beach; while SDRCC is leading the project, other partners include the Climate Science Alliance – South Coast, the Tijuana River National Estuarine Research Reserve, Coastal Frontiers Corporation, Revell Coastal, Nexus Planning Consultants, and the Environmental Law Institute's Ocean Program. SDRCC had supported three local jurisdictions with their grant applications to the state to pursue updating their local coastal plans (which were

awarded in summer 2015) and also coordinated the regional grant application to NOAA for supporting the Resilient Coastlines Project now underway.

[108] Through the working group, which met quarterly, SDRCC helped participants understand storm surge projections and share strategies for vulnerability assessments and coastal planning.

[109] SAN DIEGO FOUNDATION, News Release: "$200,000 Available in Grants to Prepare San Diego for Climate Change" (February 17, 2015), available at: http://www.sdfoundation.org/news-events/sdf-news/200000-available-in-grants-to-prepare-san-diego-for-climate-change/.

[110] SAN DIEGO FOUNDATION, "The San Diego Foundation Grants $311,500 to Build Regional Resilience to Climate Change Impacts" (July 27, 2015), http://www.sdfoundation.org/news-events/sdf-news/building-resilience-to-climate-change-through-collaboration/. Awards were given to: ICLEI, to develop a regional coastal resilience strategy; the City of Imperial Beach, to partner with TRNERR on a sea-level rise and coastal flooding study to inform local leaders; the City of Chula Vista, to build a Water Reuse Framework; the Center for Sustainable Energy, to provide water and energy education through the San Diego Home Energy Coach program; the Resource Conservation District of Greater San Diego County, to help update Community Wildfire Protection Plans and host workshops; and the Local Government Commission, to support the work of ARCCA.

[111] SAN DIEGO FOUNDATION, San Diego Regional Climate Collaborative, "Building Regional Resilience – Grant Guidelines," 2, available at http://www.sdfoundation.org/Portals/0/GrantsandScholarships/PDF/Building_Regional_Resilience_Grant_Guidelines.pdf.

[112] SAN DIEGO REGIONAL CLIMATE COLLABORATIVE, Press Release: "US EPA Honors San Diego Regional Climate Collaborative with National Award" (February 25, 2015), available at: http://sdclimatecollaborative.org/wp-content/uploads/2015/02/2015-EPA-Award-Climate-Collab-release_FINAL.pdf. The recent recognition of SDRCC builds on previous national recognition for efforts coming out of the San Diego region: since first awarding Climate Leadership Awards in 2012, the EPA has also recognized a San Diego-area agency each year, including the City of Chula Vista, the Port of San Diego, and San Diego Gas & Electric.