Achieving future investments for equitable heat mitigation

How Maricopa County can benefit from an entity that organizes regional collaboration

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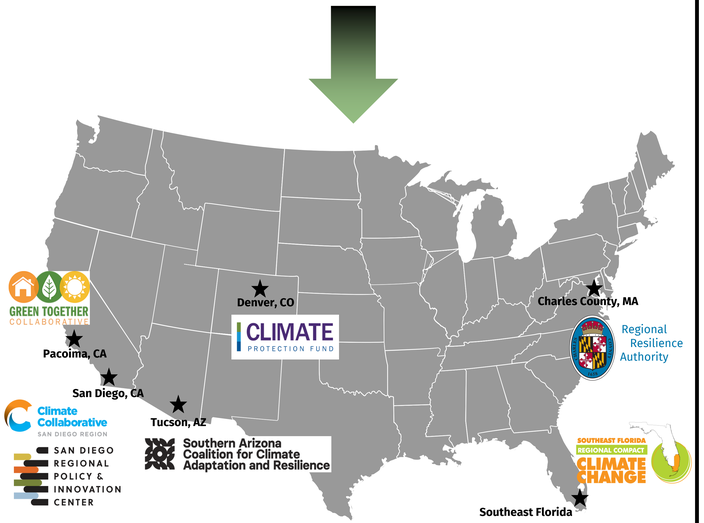
1 Introduction

Heat governance deals with the problem that heat is no one's responsibility (compared for instance to floods). Heat is a complex issue that cuts across many departments, sectors, and disciplines. Yet, its governance remains inhibited by siloes and fragmented decision-making.

To deal with climate issues such as heat, regional collaboration efforts are becoming more prevalent across the United States. Regional collaboration is recognized as an effective approach to solve problems beyond the reach of any single agency or department. Accordingly, local and regional jurisdictions have been exploring new concepts for institutions on a regional level.

Regional (climate) collaborations in the US are already producing local investments



What this means...

By building partnerships, stakeholders across agencies, have been able to unlock their region's potential and make substantial investments towards future resilience, addressing climate and heat.

In Maricopa County, various organizations across public health, sustainability, and economic development are working towards resilience to heat. With a similar approach, such as a regional cooling authority, Maricopa County could foster and formalize regional collaboration to reap further benefits and equitable cooling.

2 What can future improvements look like?

To envision the possible future improvements, which a regional approach could bring forth, it helps to consider what possible outputs may be realizable. The graphic depicts outputs achieved by regional (climate) collaborations around the US. These case studies illustrate a pathway for equivalent implementation in Maricopa County.

Output Types

Infrastructure	Products	Services	Institutional	Knowledge

What are concrete examples of outputs?

Infrastructure	Products	Services	Institutional	Knowledge
Greening and redesigning the built infrastructure (trees, parks, bus shelters, green corridors, etc.)	Solar installations Electric vehicles	Workforce development Partnership building Funding advice Policy recommendations	Inclusive stakeholder engagement plans Equitable representation of diverse groups of stakeholders	Comparable metrics, data & assessments Novel solution options Research publications
				

What are examples of sustainable benefits?

Infrastructure	Products	Services	Institutional	Knowledge
More biodiversity More thermal comfort	Increases in renewable energy Resource efficiency Power back up options	Quality Employment Local added value through grants/funding	Civic engagement	Monitoring Precaution

3 Two successful examples of collaboration

1. San Diego Regional Policy and Innovation Center

To add to the local value and increase investment opportunities that may unlock the region's potential, the San Diego Regional Policy & Innovation Center aligns around collaborative solutions to increase its competitiveness for the various state and federal funding opportunities. Projects from 2022 include:

PROJECT 1:
Leveraging $4.5M in American Rescue Plan Act (ARPA) funds

PROJECT 2:
Filed for California's Community Economic Resilience Fund (CERF) ($5M up to $50M)

2. Green Together Collaborative

The Green Together Collaborative is an innovative alliance between public and private partners to reduce greenhouse gas emissions, strengthen the local economy and improve public health in Pacoima and Sun Valley, funded by the Transformative Climate Communities Program.
Among realized projects in 2022 are:

ELECTRIFICATION OF BUS FLEET

Improving public transportation:
14 new electric buses & 7 electric chargers

ROOFTOP SOLAR

Improving resilient energy supply
669 kilowatts of solar photovoltaic systems on 175 family homes

URBAN GREENING

Enhancing public spaces
Park renovation, 2000 new trees on commercial & residential areas

4 Key Takeaways

- Future investments into equitable heat mitigation is necessary to address climate impacts
- Regional collaboration on heat mitigation pays off: several successful case studies around the US lead the way and demonstrate the added value of increased investment stemming from cross-sector, regional collaboration
- Maricopa County, by fostering its regional collaboration, will be able to increase its competitiveness for national and state funding opportunities

Equitable governance of extreme heat in Maricopa County

A landscape analysis of current cooling services offered across the region

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Integrating Heat Governance

Why a landscape analysis?

This research project explored how to co-design a regional approach for equitable governance of extreme heat in Maricopa County. A landscape analysis provides the foundations for this, as it identifies active actors in the region and the cooling services they provide. Such documentation helps in thinking about how to coordinate actors and services through a regional approach.

The landscape analysis focused on the regional services in Maricopa County. On a local level, all services in the Cities of Phoenix and Tempe were included. (While including all cities in Maricopa County was outside the scope of this research, this provides space for further research). Information on existing services was gathered through comprehensive web research, expert interviews, and observational notetaking in workshops.

What does the landscape analysis show?

Existing cooling services are organized according to four phases of disaster management: mitigation and preparedness (**pre-crisis**), response (**in-crisis**), and recovery (**post-crisis**) (Lettieri et al., 2009). For each phase, services are mapped according to the place of heat impact: the individual, home, work/school, city/environment, and region.

The landscape analysis gives insights into what cooling services are available and which actors are involved in providing them. It makes visible, which disaster management phases and places are well covered through cooling services, and which are not. By defining sustainability goals for the future, we can also see how current cooling services are helping to reach those goals, and where there is need for more services.

Table 1: Number of cooling services according to scales and disaster management phases in Maricopa County

	Individual	Home	Work & School	City & Environment	Region	Total
Mitigation	8	30	5	23	20	**86**
Preparedness	2	1	2	0	2	**7**
Response	2	6	0	7	5	**20**
Recovery	0	0	0	0	2	**2**
Total	**12**	**37**	**7**	**30**	**29**	**115**

The sections below unpack the landscape analysis. They give an overview over exemplary actors and services and how these support equitable access to cooling services. Regional organizational forms are proposed to facilitate coordination of identified cooling services.

Disaster management phases

Before crisis

Mitigation
- Efforts to minimize risk and reduce vulnerability of the ecosystem and social system

Preparedness
- Preparing citizens for imminent threat and prepare post-disaster activities

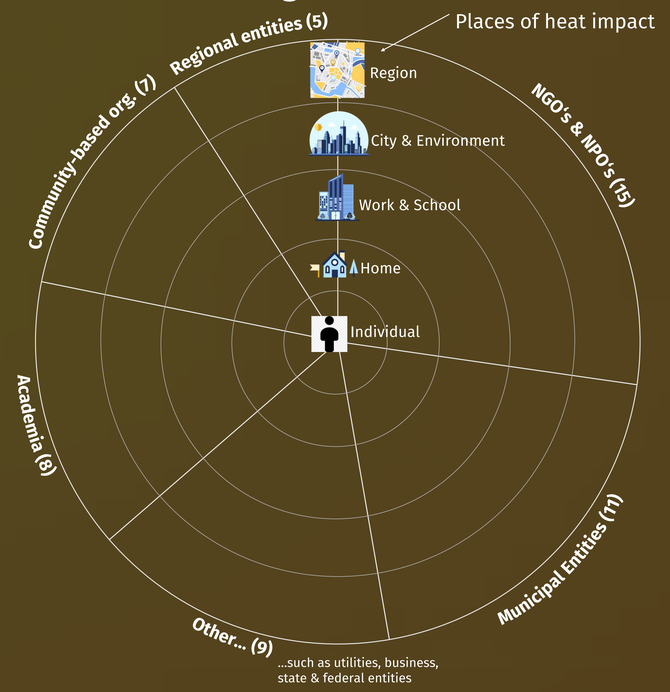
During crisis

Response
- Efforts to manage and control effects of a disaster and minimize human and property loss

After crisis

Recovery
- Actions to bring a disrupted area back to a (improved) normal condition

Current distribution of actors involved in cooling services (n=55)



Actors

What is the range of actors from different sectors that need to be coordinated for heat governance?
Examples of actors:

Phoenix Office of Heat Response & Mitigation (OHRM)

OHRM focuses on heat response (helping people cope with hot weather) and heat mitigation (cooling the city and making it more comfortable), coordinating city programs and policies yearround.

CHISPA

The community organization advocates for a safe climate, healthy neighborhoods and clean energy. They help to increase collective decision-making, giving affected stakeholders a seat at the table.

A total of 55* actors were counted, including municipal entities, community-based organizations and grassroots, academia, NGO's and NPO's, regional entities, utilities, the private sector, as well as state and federal entities.

Services

What cooling services available in Maricopa County are are included in the landscape analysis?
Examples of services:

Heat Relief Map

Website showing hydration stations, cooling centers and collection sites across the valley.

Relevant in:

Phase: Mitigation & Response

Place: City & Environment, Region

Cool Roofs Initiative Phoenix

Initiative to paint city buildings with reflective coating

Relevant in:

Phase: Mitigation

Place : City & Environment

Equity

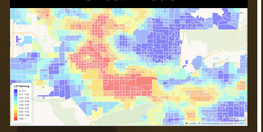
Extreme heat cannot be addressed without considering equity. Heat impacts are not felt equally across communities. Racist housing policies and historic disinvestment in low-come neighborhoods and communities of colors increase the exposure to heat impact while having limited access to resources to cope with extreme temperatures. Equity must therefore be central to the process of addressing heat.

When is heat equity achieved?

- Vulnerabilities are mapped
- Affected stakeholders take part in decision-making
- Emergency preparedness capacity is built
- Adaptation and mitigation through changes in planning and design

(Marx & Morales Burnett, 2022)

Urban Heat



➢ Landscape analysis identified gaps and inefficiencies to achieve equity

Organizational Form

What organizational forms do other collaborations around the US take in order to coordinate provision of services on a regional level?

Table 2: Types of organizational form to establish a regional heat entity based on examples in the US

Type	Description	Examples
501 (c) 3 NPO	A type of non-profit organization operating to fulfill the following purposes: **charitable**, religious, educational, scientific, etc. Most eligible organizations are charitable organizations, churches, and private foundations	San Diego Regional Policy & Innovation Center Regional Resilience Authority Charles County
Network	Tend to be flexible organizations brought together by a common interest or concern, with varying degree of formalization	Green Together Collaborative Pacoima Climate Collaborative San Diego Southern Arizona Coalition for Climate Adaptation and Resilience
Fund	City budget (for example a certain sales tax percentage) dedicated for specific purposes, environmental/climate bonds to fund infrastructure investments	Denver Climate Protection Fund
What other forms could be possible? Sustainable enterprises, such as employee-owned enterprises, cooperatives, social enterprises or B-Corps organizations		

Next Steps/Takeaways

- Continue mapping who does what (on which level/phase) on heat mitigation
- Explore ways to further strengthen existing synergies
- Close gaps (assess vulnerabilities and risks, create robust responses), prioritize equity
- Information exchange, coordination and collaboration can help with building good partnerships that together can ensure equitable provision of heat mitigation governance and services

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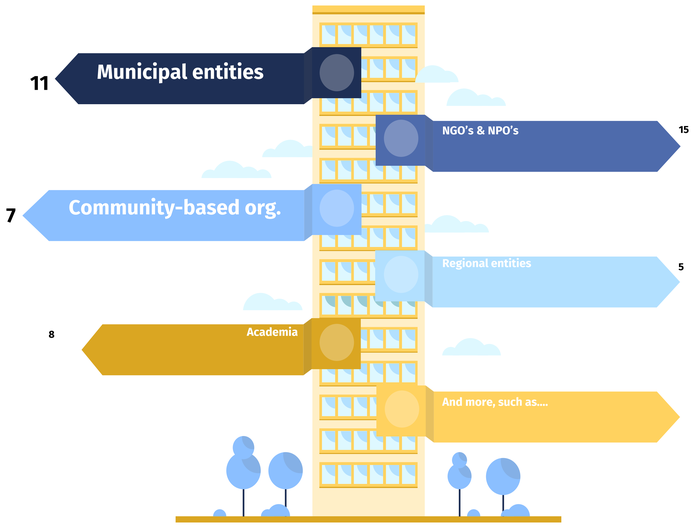
11
Municipal entities
NGO's & NPO's
15
7
Community-based org.
Regional entities
5
8
Academia
And more, such as....