



Multi-level, Cross-sector Evaluation of the Integration of Environmental Justice into Policies and Action for Urban Heat Island Mitigation in the US

Xiaofei Qin

Graduate Student Summer Fellows

20 Jul 2023

Boston University Institute for Global Sustainability
Department of Earth and Environment



Research Goals

- Systematically review how governmental initiatives and non-governmental efforts have mitigated the UHI effect, particularly with regard to environmental justice concerns

1) Establish a multi-level and cross-sector analysis framework for systematically evaluating current heat resilience governance.

2) Assess the integration of environmental justice into UHI policies and action.

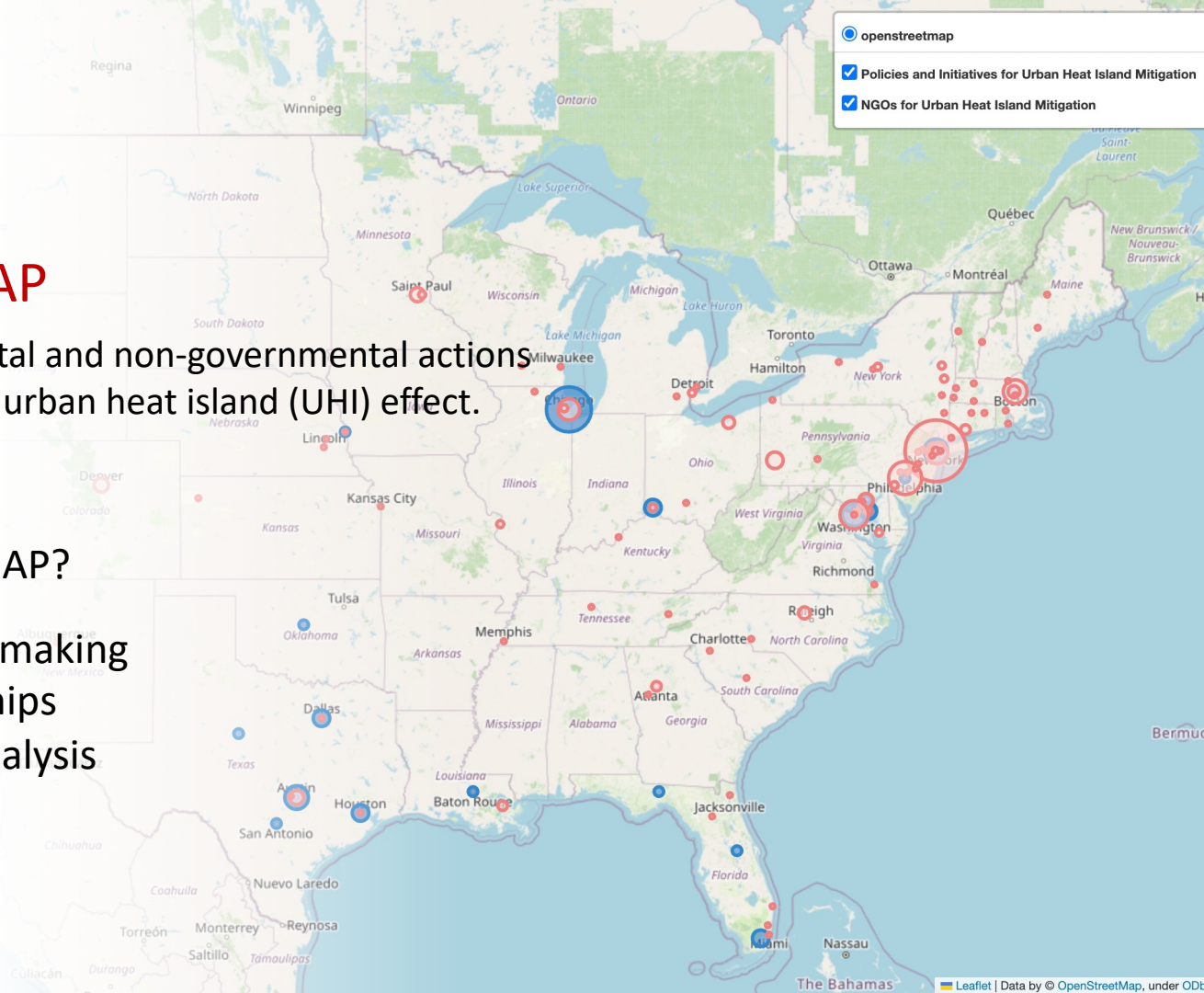
Outcomes

1. UHI-ACTION-MAP

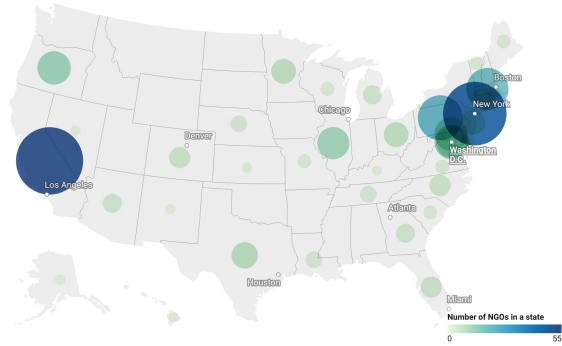
- pinpointing governmental and non-governmental actions aimed at mitigating the urban heat island (UHI) effect.
- UHI-ACTION-MAP.html

Why use UHI-ACTION-MAP?

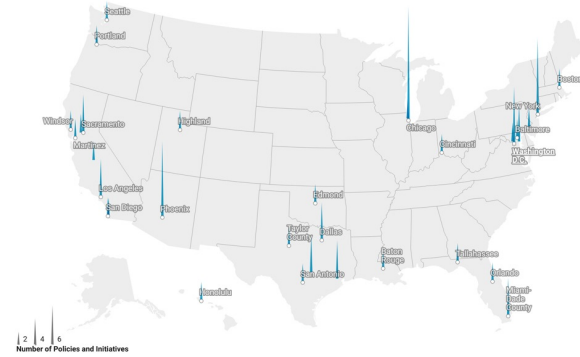
- a) Facilitating decision-making
- b) Promoting partnerships
- c) Supporting policy analysis



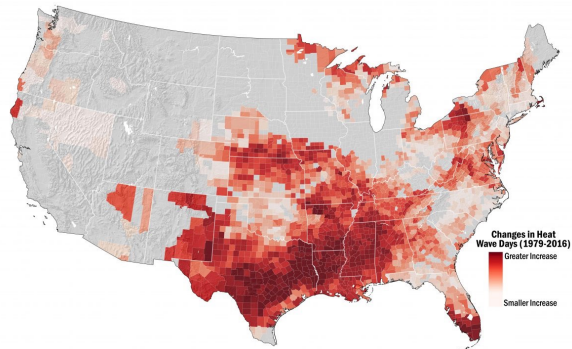
NGOs



Governmental documents

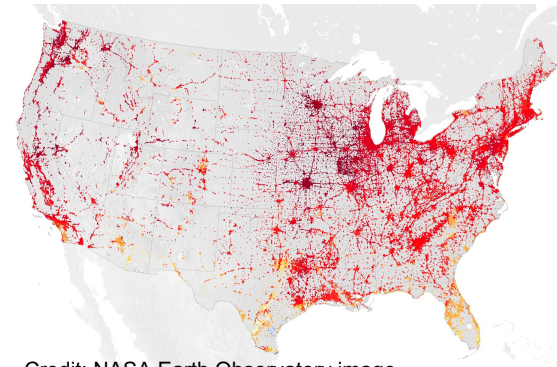


Map of Increasing Heat Wave Days



Over Time In the United States, 1979-2016. Image Credit: Arie Manangan and Ambarish Vaidyanathan, CDC Climate and Health Program

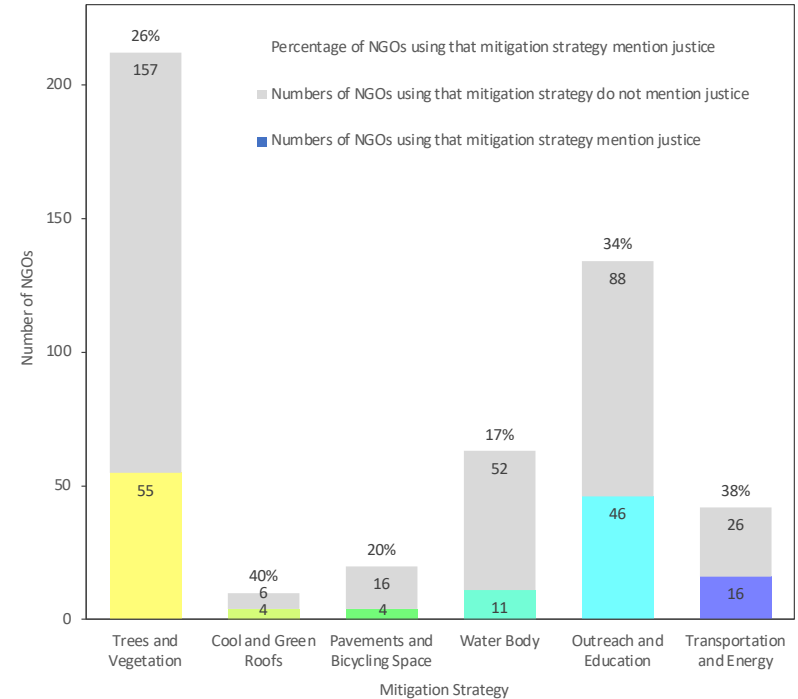
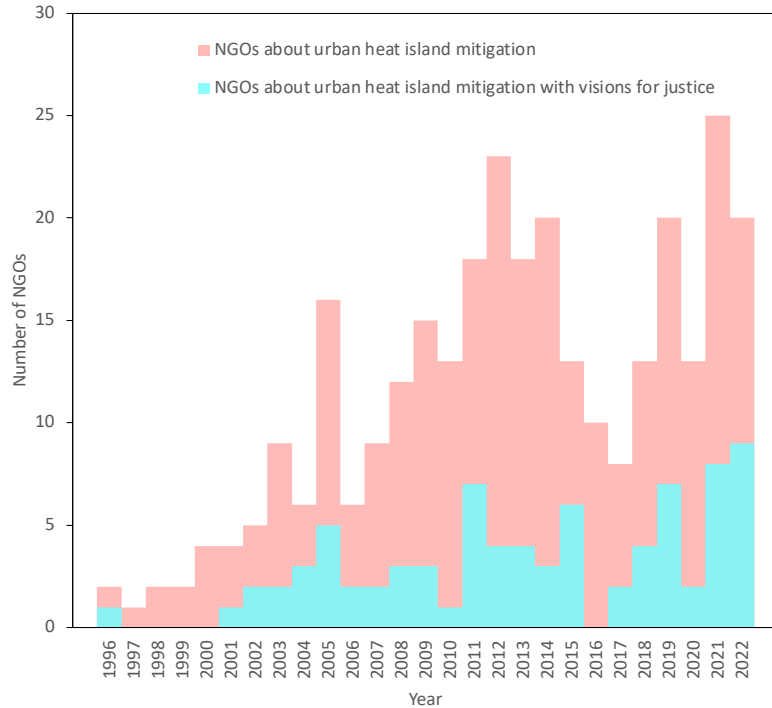
Urban heat island effect (2015)



Outcomes

2. Justice Attention

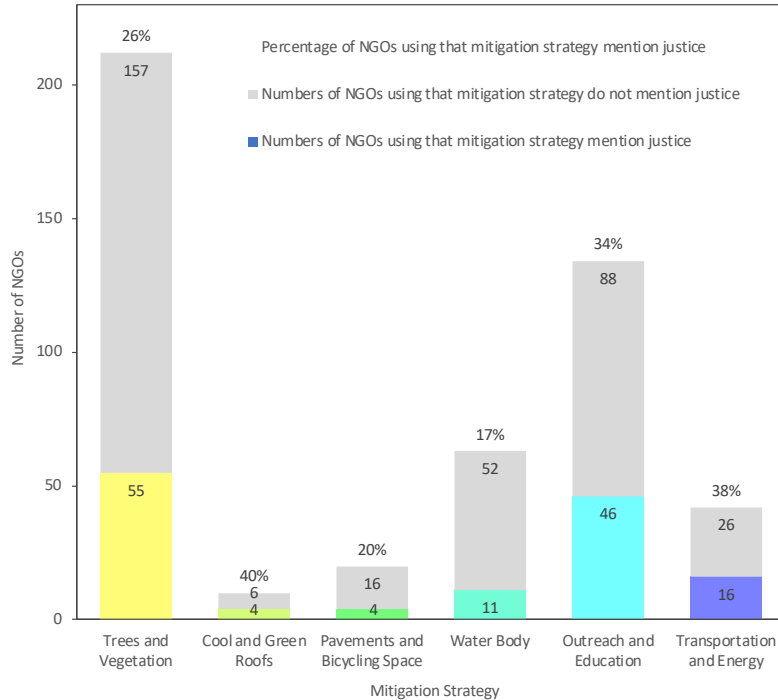
NGOs



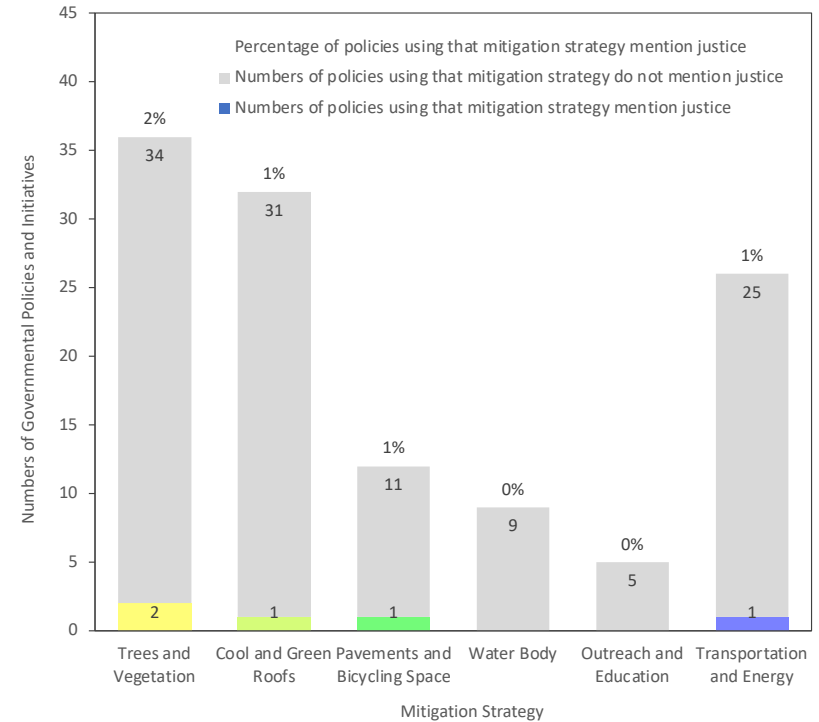
Outcomes

3. Cooling Strategies and Justice Attention

NGOs

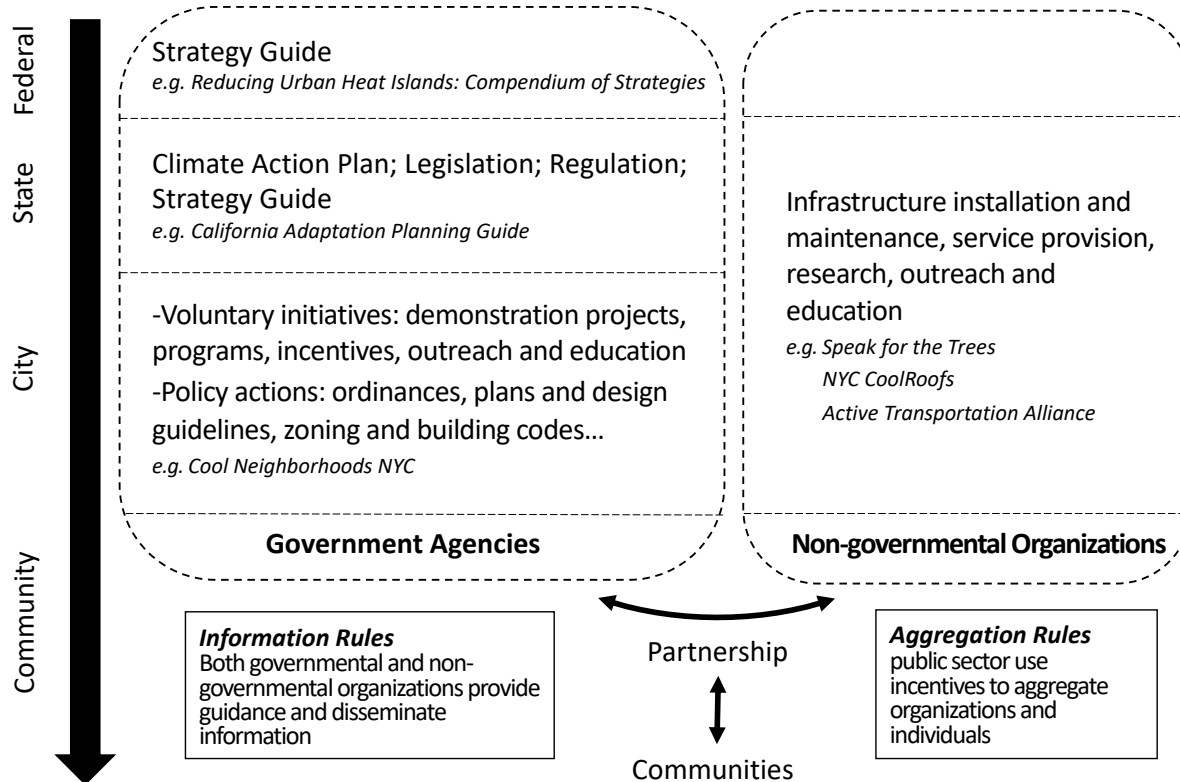


Governmental documents



Outcomes

4. Cross-level action structure



Inequity in Information Rules

- Little is informed about how amendments can be made at **stakeholders' or vulnerable groups' request**.

Inequity in Aggregation Rules

- There are **few enforcement measures** that would oblige local communities to **take responsibility for the maintenance, monitoring, and reporting of cooling infrastructure** in their respective regions.
- Individuals, heat-vulnerable group in particular, are limited in their ability to take action **due to funding constraints and the absence of legitimate ownership and accountability**.

Outcomes

- Academic Conference:

The International Association for Society and Natural Resources

The IASNR Conference (formerly known as ISSRM)



Future Plans

- **Interviews with 10-15 NGOs (online):**
 - How do they update their action
 - How do they measure inequity
 - How do they help to reduce energy burden of disadvantaged communities
- Peer-review journal publication
- Chapter 1 of dissertation