

Benchmarking Progress Towards Social Equity-Focused Climate Adaptation Planning in U.S. Cities

Eric Chu

Community and Regional Development

Department of Human Ecology

University of California, Davis

Why study climate adaptation in cities and local jurisdictions?

Emphasis in cities has been on climate mitigation. However, cities are recognizing the need to initiate adaptation planning and implement adaptation measures.

Climate change will disproportionately impact poor communities -- many of which are in cities -- because of their higher exposure to climate hazards, lower response capacity, and lower access resources and services.

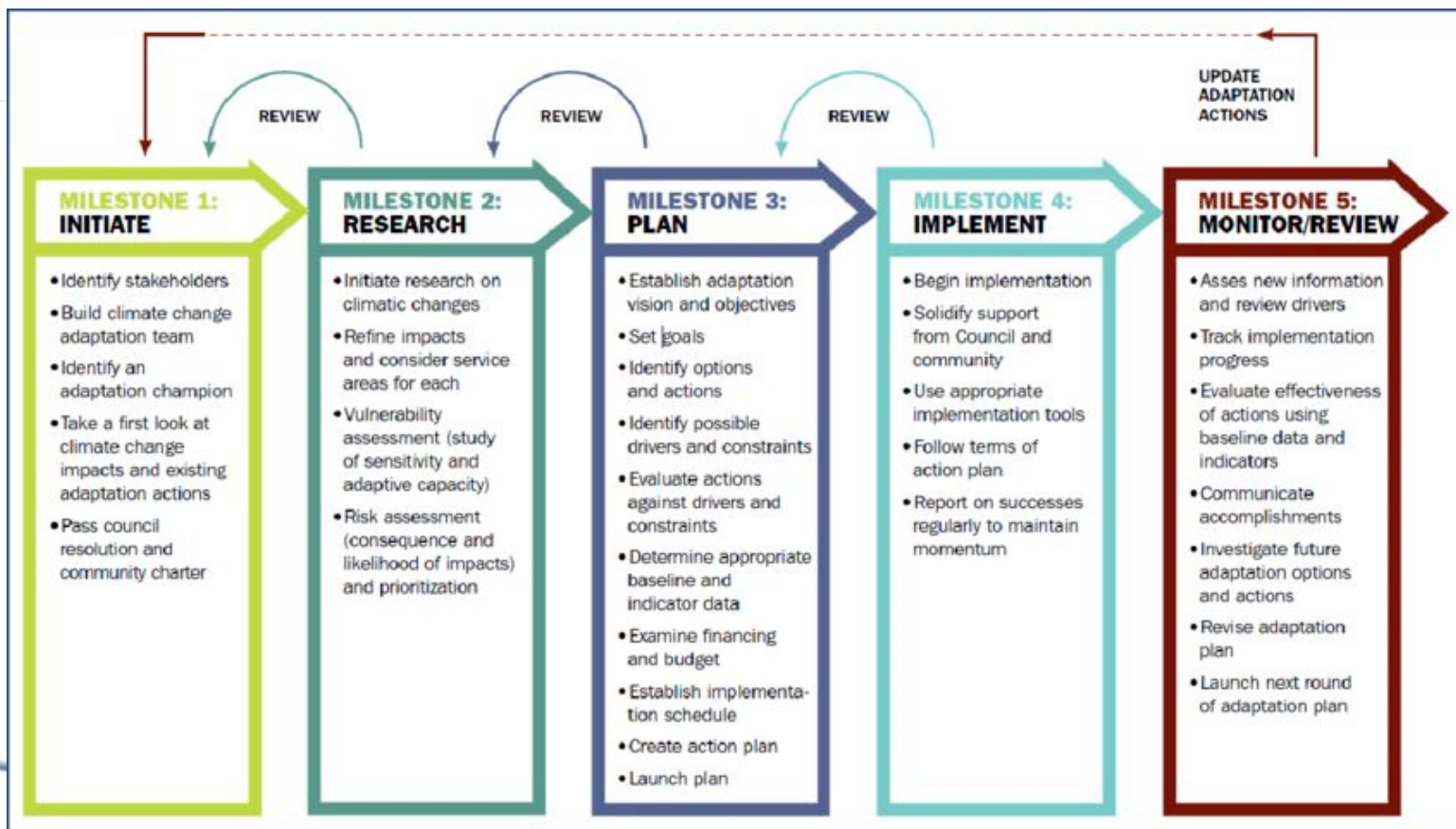
Integrating climate adaptation is key for facilitating responses to impacts and supporting development, but adaptation has a distinct 'logic'.

Cities and local communities are increasingly nodes (or 'laboratories') of climate adaptation and resilience action.

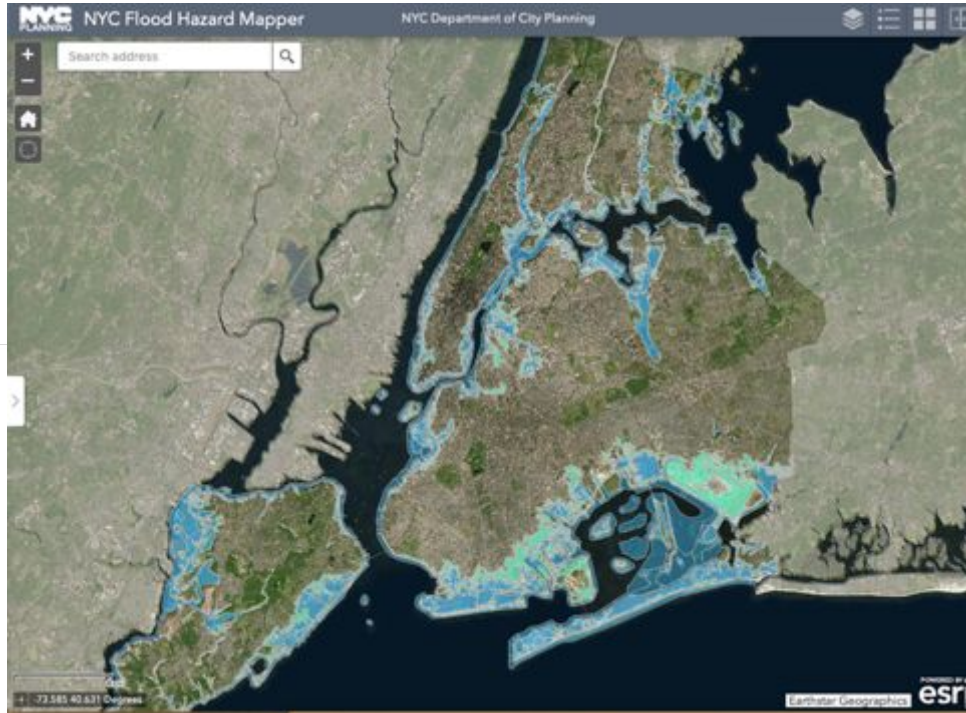
The “logic” of climate adaptation

- Draws on typical planning tools and strategies.
- Often relies on strong leadership.
- Given complexities and uncertainties, there are strong tendencies for experimentation and incremental change.
- Mainly institutional in nature.

Climate Action Planning: ICLEI’s Cities for Climate Protection Five Milestones



Example: New York City



Layers showing future high tide in the 2020s, 2050s, 2080s, and 2100 are based on NPCC's projections for SLR in New York City.

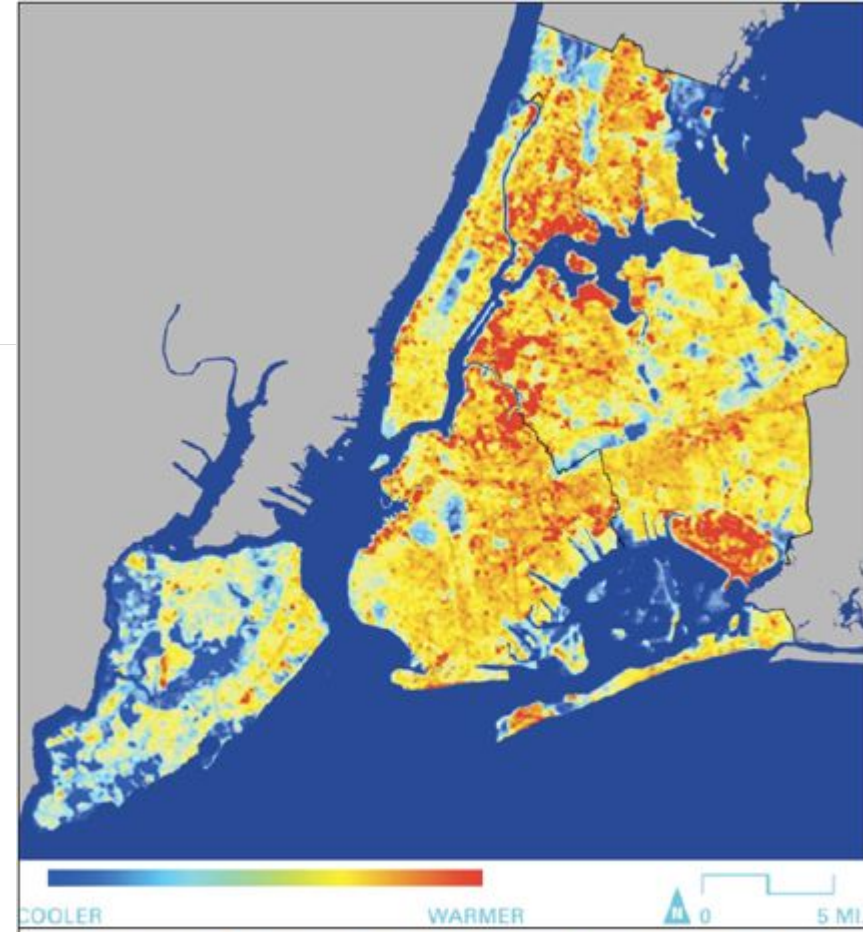
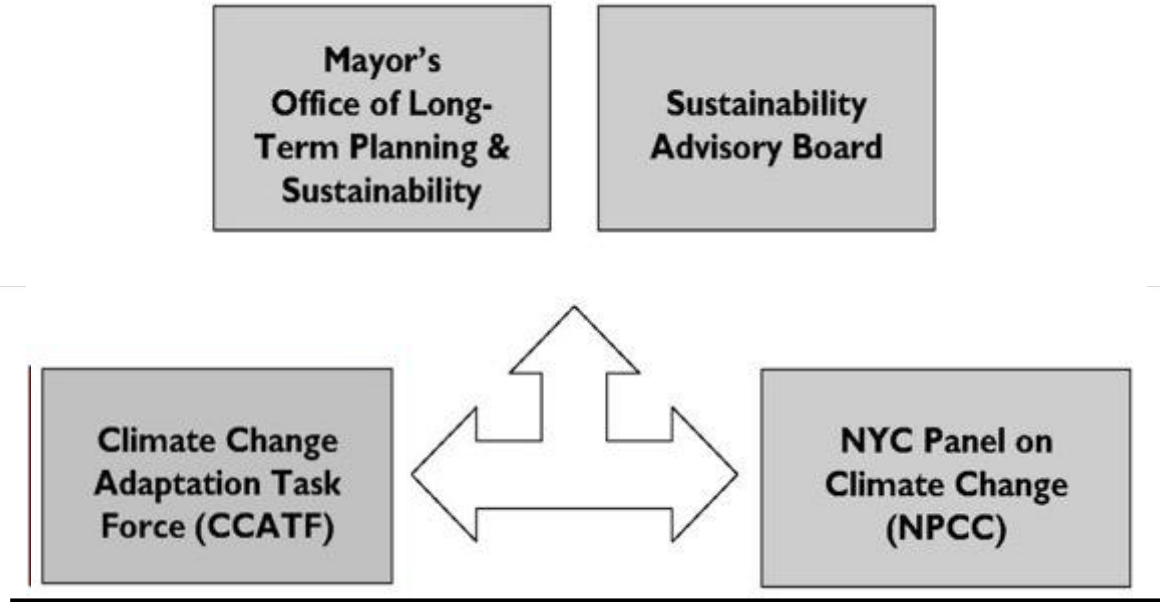


Figure 1: Some NYC communities experience higher temperatures than others. Variation in NYC's densely built environment results in disparate neighborhood-level risks. Source: LANDSAT Thermal Data, 2009.

Taskforce creation in New York City



NPCC

Academia

- NASA/Columbia
- CISC/CUNY
- City Tech/CUNY
- Columbia – Lamont
- Columbia University
- NYU
- Rutgers University
- SUNY-Stony Brook
- Wesleyan/UCS

Private Industry

- AIG
- Hoguet Newman Regal & Kenney, LLP
- Oliver Wyman
- Swiss Re

CCATF

- 12 City agencies
- 5 Regional public authorities
- 6 State agencies
- 2 Federal agencies
- 15 Private companies

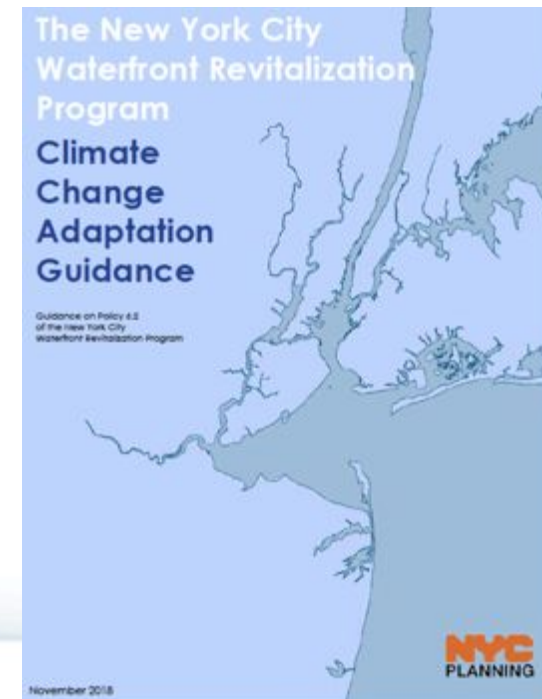


New York City Adaptation strategies



Dealing with urban heat through street trees, cool roofs, cool pavements, different kinds of green infrastructure, together with launching climate risk training in at-risk neighborhoods.

Revitalizing waterfronts by introducing building set-backs, permeable surfaces, strengthening and 'greening' coastal infrastructure.

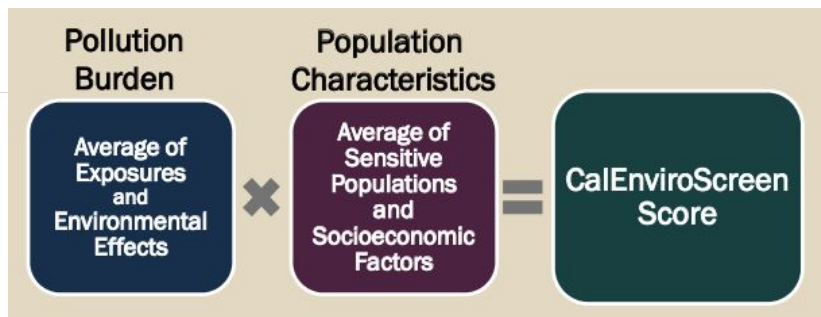


The 'Big U' or 'Dry Line'



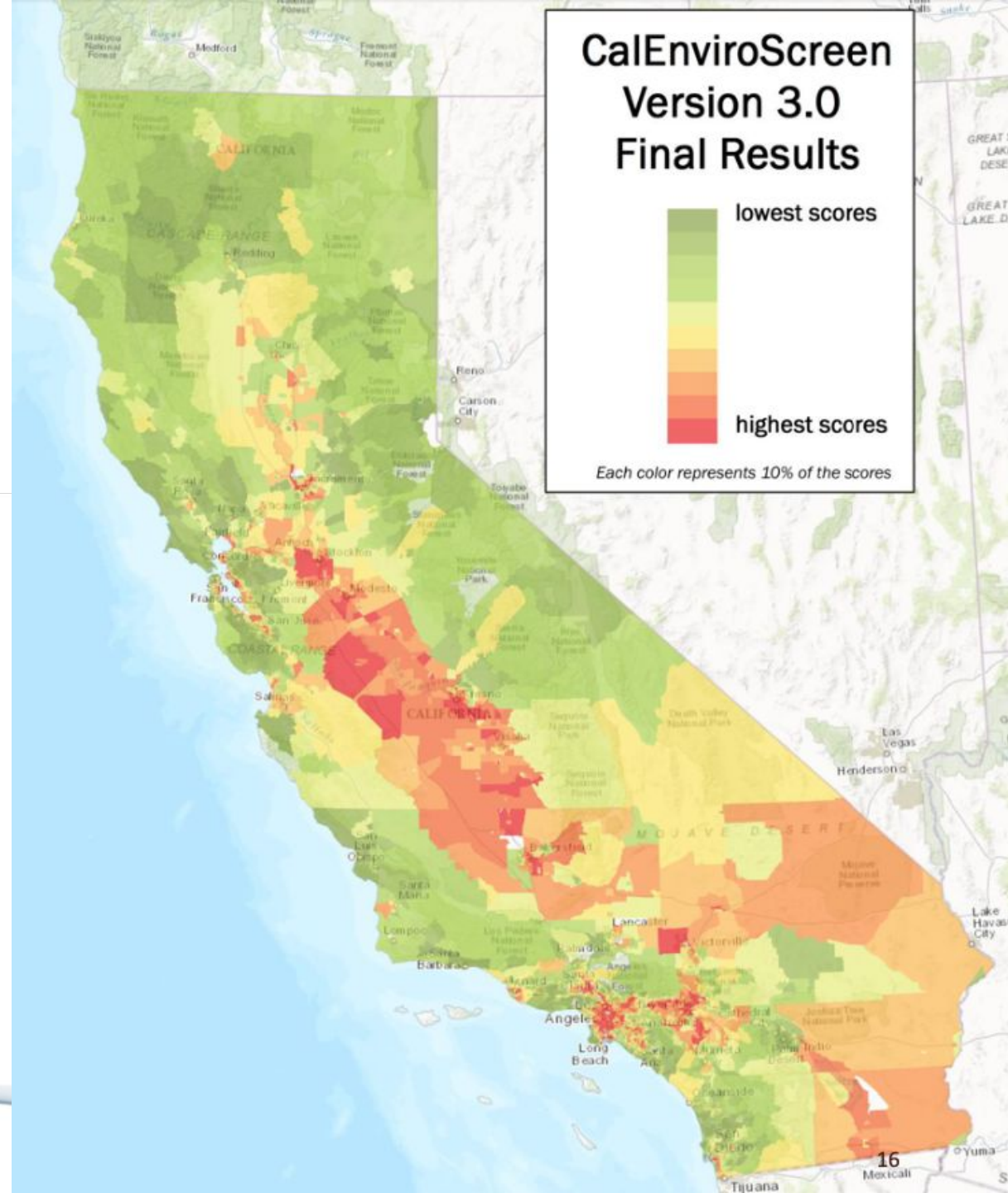
Another example: California

Example: CalEnviroScreen Scores

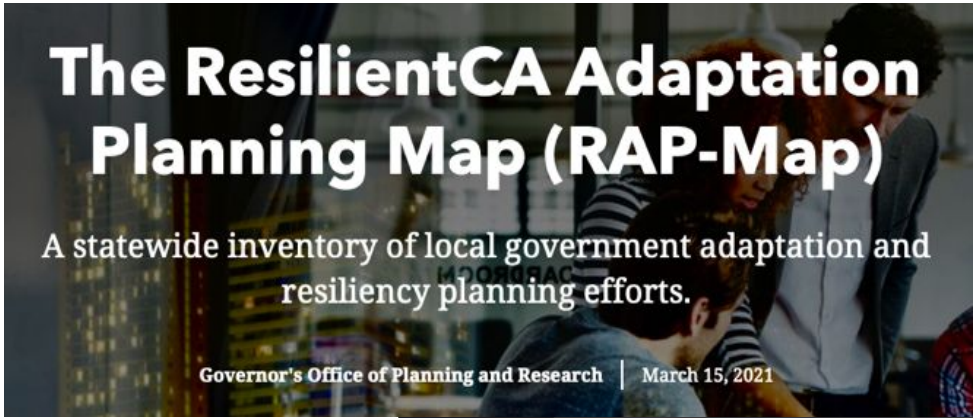
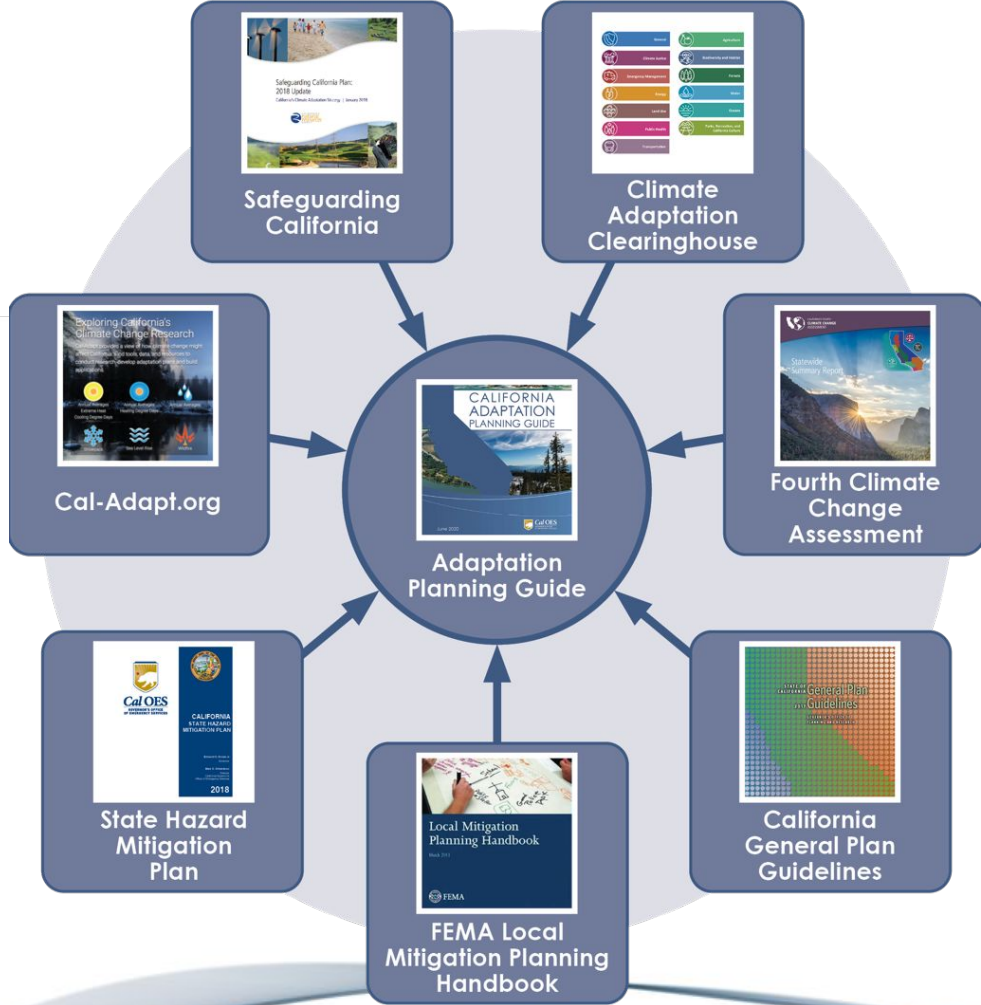


A high score means higher pollution burdens and population vulnerability.

A top 25% score represents “disadvantaged communities” under SB535(2017).

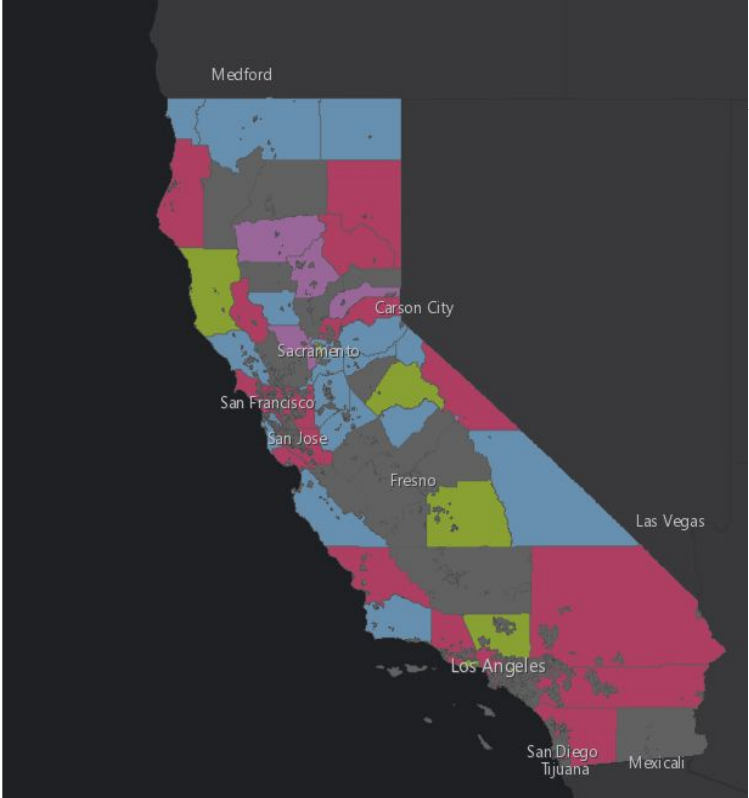


Another example: California



Legend

- Unknown/uncategorized
- Acknowledges climate risk or adaptation efforts
- Completed vulnerability assessment
- Completed adaptation policy development
- Completed vulnerability assessment and adaptation policy development
- Updated and adopted Safety Element



Link: <https://resilientca.org/topics/land-use-and-community-development/#resilientca-adaptation-planning-map-rap-map>



Another example: Magic City, Little Haiti, Miami



Link:
<https://www.wlrn.org/news/2019-11-04/as-seas-rise-miamis-black-communities-fear-displacement-from-the-high-ground>

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Climate gentrification in Little Haiti, part 2 (video story included)

By **Maria Raudex** - December 10, 2019



For Part 1 of this series, [click here](#).

Climate change gentrification is changing Miami real estate values, according to new research. Developers looking for houses on elevated land are moving from Miami Beach to inland communities, such as Little Haiti.

A small bookstore called Librería Mapou is located on NE Second Avenue, one of the main streets in Little Haiti. Its owner, Jean Mapou, says that he could become a millionaire if he decided to sell the building where his store is located.

"I bought it for \$81,000 in 1990, now they are offering \$600,000," Mapou said. "If I ask [for] \$1 million, they would give it to me."

Developers used to see Miami Beach as a perfect destination to invest, but now that paradise is threatened by sea level rise, more flooding and damaging storms. For that

Link: <https://youtu.be/06v1QjnW62g>

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We now have ±15 years of experience in urban adaptation/resilience.

There is growing global recognition of adaptation and resilience needs.

We have moved from institutionalization to implementation, but what are the strengths and limitations of local leadership in this domain?

Barriers to Local Adaptation	Disadvantages of City-Led Adaptation	Limited Scope of Local Adaptation
<ul style="list-style-type: none">• Lack of public awareness• Lack of political leadership• Staff and data constraints• Lack of funding for planning or implementation	<ul style="list-style-type: none">• Lack of control over infrastructure, funding, codes, laws, policies• Fiscal dependence on development• Short political cycles and priorities• Bounded by geographical boundaries	<ul style="list-style-type: none">• Inefficient planning and implementation• Uncoordinated strategies and standards• Spatially uneven adoption• Spillover effects

Visioning Resilient Urban Futures

The contesting narratives of change:

- Development for growth, productivity, investment, and security.
- Prioritizing livability and environmental 'utopianism'.

A need to unpack their sources, incentives, and consequences:

- The role of global capital (and speculative forms of technology).
- Real impacts on emissions reduction, risk management, and sustainability?



Example of Eko Atlantic City in Nigeria

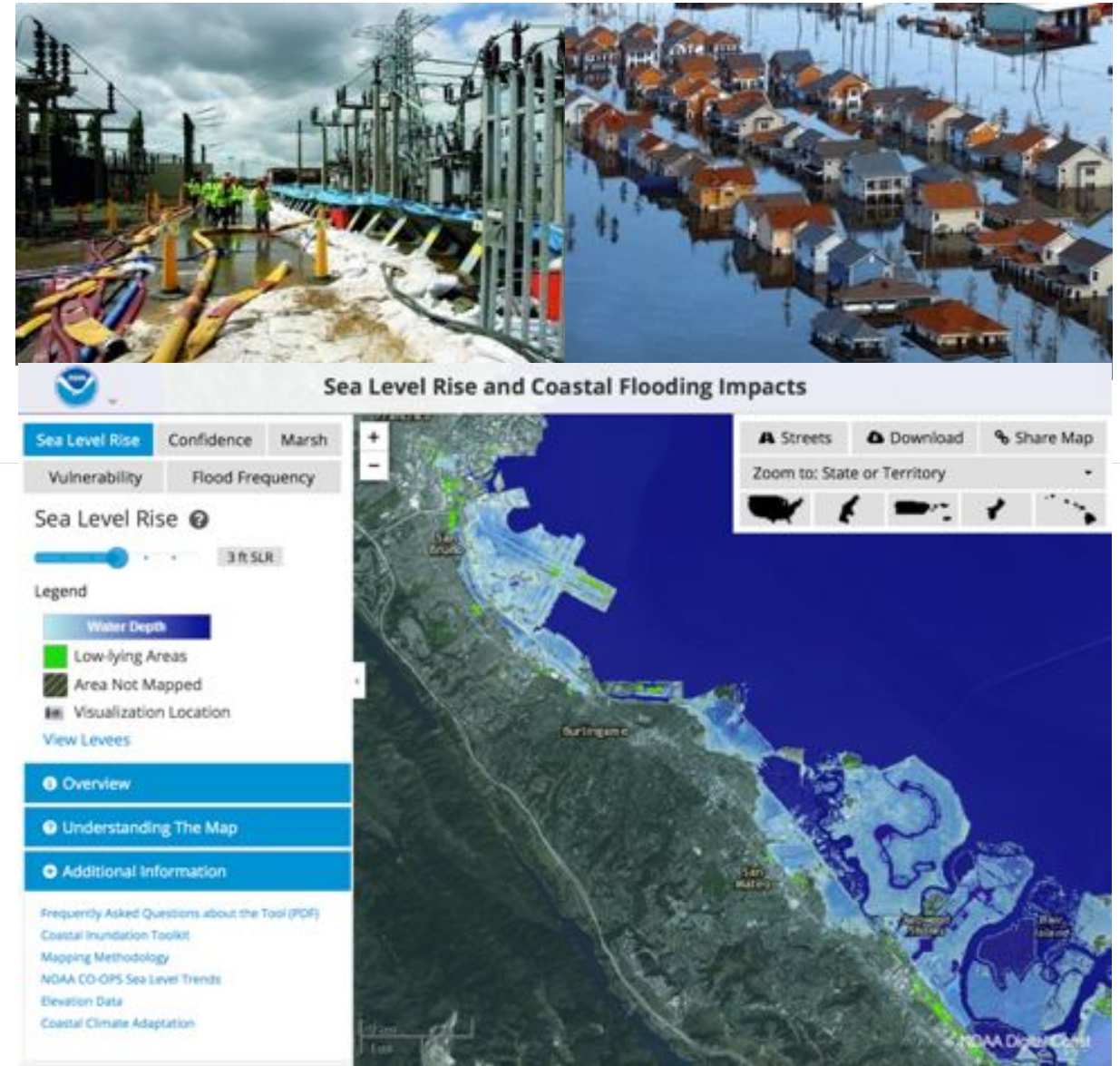
Reorienting behaviors and values

Enabling change through:

- Policy and legislative action
- Financial and social incentives
- Knowledge and awareness

Complexity derived from:

- Politics and ideology
- Values of urban system components
- Negotiating diverse (and likely conflicting) interests



Focusing on equity and justice

Dealing with the 'winners' and 'losers' of adaptation action:

- Building inclusive participatory processes.
- (Re)distributing goods, infrastructures, and services.
- Recognizing interests of the vulnerable and marginalized.



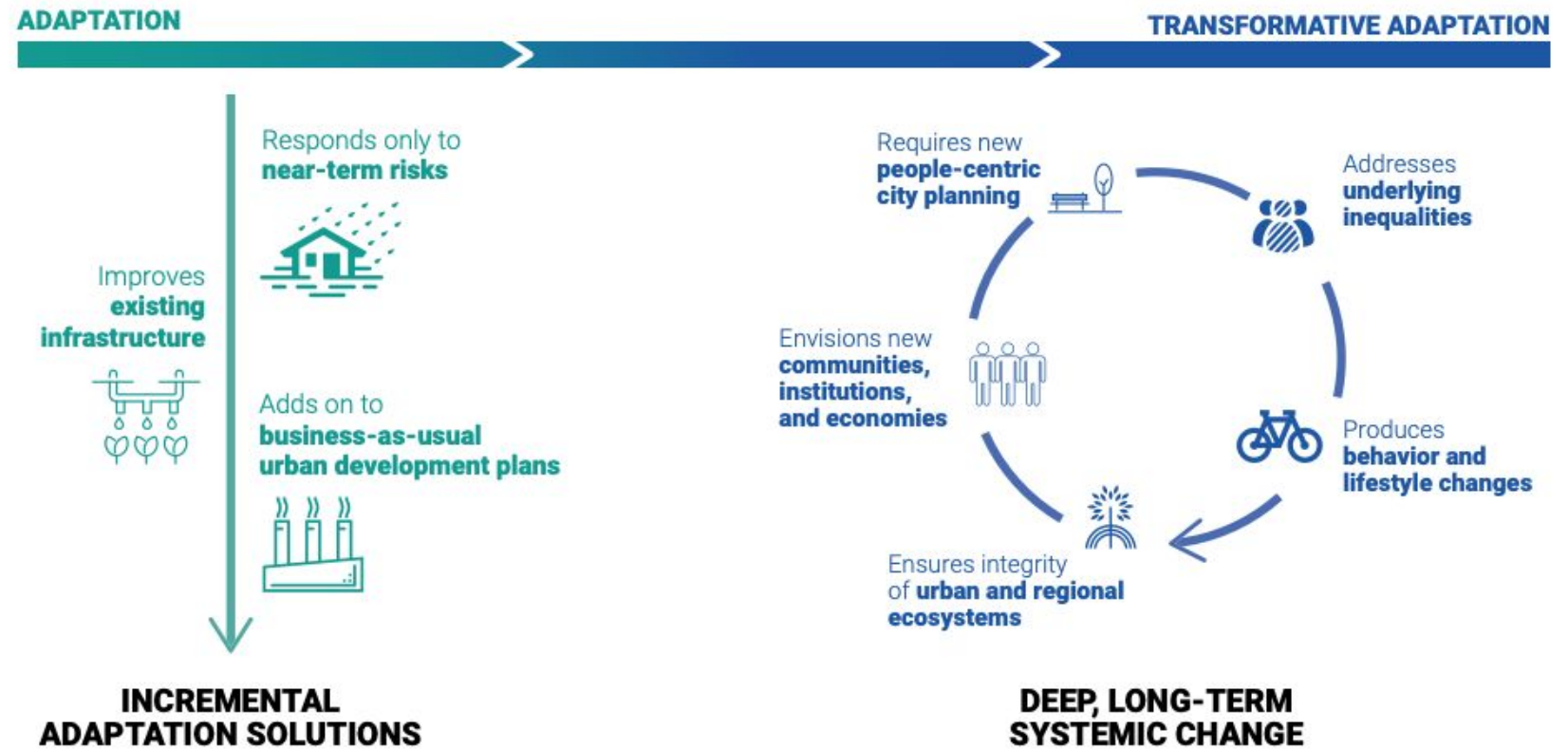
Example: A normative model of transformative urban adaptation

FIGURE ES-1

Incremental vs Transformative Urban Adaptation to Climate Change

Effort via the Global Commission on Adaptation (2019-2021) tried to envision transformative climate adaptation by drawing on SDGs, New Urban Agenda, IPCC Climate Resilient Development Pathways, and other efforts.

See: Chu, Eric, Anna Brown, Kavya Michael, Jillian Du, Shuaib Lwasa, and Anjali Mahendra. 2019. "Unlocking the Potential for Transformative Climate Adaptation in Cities." Background Paper Prepared for the Global Commission on Adaptation. Washington, DC and Rotterdam. <https://wriroscities.org/research/publication/unlocking-potential-transformative-climate-adaptation-cities>



What does transformative climate action look like in practice?

Long history of scholarship on climate equity and justice in cities, especially around evaluating unequal exposure to impacts, differential socioeconomic vulnerabilities, and gaps in access to information, services, and capacities.

Emerging discourse focuses on analyzing drivers of inequality— including both historic and contemporary patterns of discrimination and marginalization— and documenting trends and experiences at the local level.

Armed with this conceptual understanding, we ask: *how do we translate normative priorities around furthering justice and equity into practical, actionable tools and strategies?*



Our Approach

First, explore the different options for operationalizing climate justice in planning tools and instruments.

Table 6.1 Pathways and Examples of Adaptation Options

Structural	
Engineered	Seawalls; expanded aquifer storage; beach nourishment; redirecting rivers; infrastructure provision and upgrading
Technological	Environmental monitoring systems; green roofs; hazard mapping and monitoring systems; structural weatherproofing and upgrading
Ecosystem-based	Reestablishing wetlands and managing floodplains
Institutional	
Laws and regulations	Executive orders; easements; zoning and land use regulations; coastal zone and disaster loss reduction legislation
Government policies, programs, and services	Slum upgrading programs; National Action Plans for Adaptation; National Adaptation Plans; climate, coastal, water, land use, and disaster management plans; urban upgrading programs
Economic	Economic incentives; insurance, lending and finance programs; development aid; provision of social safety nets; tax-related policies to encourage and finance adaptation
Societal	
Educational	Agricultural and other types of extension programs; technical assistance and training programs; public education
Informational	Early warning systems; water quality monitoring; epidemiological monitoring; emergency alerts and warnings
Behavioral	Rainwater harvesting; reduced water consumption; storm drain clearance; individual and community gardens; retreat and migration; household disaster mitigation and evacuation planning
Social services	Food banks; vaccination programs; preventive health services
Sociodemographic	Livelihood replacement; resettlement or displacement seasonal or permanent settlement abandonment

Based on Birkmann et al. 2010; Broadleaf Capital International and Marsden Jacob Associates 2006; Burton 1996; IPCC 2014; National Research Council 2010; Parry et al. 2007; Smithers and Smit 1997.

Second, benchmarking actions (their design and implementation) against a set of evaluative criteria.

Table 2

Equity, inclusion, and justice indicators

Criteria	Definition	Indicators
Equity	Equal and fair distribution of opportunities, resources, and environments free from climate hazards and risks regardless of individual/group identity or background.	Plans identify adaptation needs for low-income and socially vulnerable communities. Interventions focus on targeted enhancement of economic opportunities, access to safe and green living environments, and provision of adequate public facilities in case of extreme climate events.
Inclusion	Degree to which decision-making processes and procedures are transparent, accountable, and include diverse voices, values, and viewpoints.	Processes are broadly participatory and representative of diverse interests. Strategies can range from basic outreach tools (such as public presentations or digital platforms), inquiry-based methods (such as residential surveys, questionnaires, and stakeholder interviews), to elaborated co-creative arenas (such as public interactive workshops and formation of community liaison committees).
Justice	Recognition that minority groups are structurally vulnerable and intergenerationally disadvantaged in terms of their cultural, political, and socioeconomic rights.	Adaptation goals recognize and strive to rectify systemic and entrenched inequalities attributed to discrimination based on race, ethnicity, gender, ability, and sexuality. Plans include combating injustice through anti-racist (such as racial healing or reconciliation), gender transformative, or socioeconomically empowering strategies.

Chu, Eric and Clare Cannon. 2021. "Equity, Inclusion, and Justice as Criteria for Decision-Making on Climate Adaptation in Cities." *Current Opinion in Environmental Sustainability* 51 (August): 85–94.

Applying Evaluative Criteria *(including assessment of depth of engagement)*

First Order	Second Order	Notes
Procedure	(General)	General category: does not fit elsewhere, general
	Outreach	References unidirectional and more passive inputs (surveys, public comments, posters, websites, advertisements) with relatively limited information feedback to decision-making.
	Participation	References bidirectional, communicative, and more active engagements such as interviews, public meetings, digital apps with reporting functions, etc.
	Coproduction	References interactive and discursive approaches such as community visioning workshops, scenario building events, knowledge co-creation opportunities, etc.
	Quality	References processes in place to enhance process quality in terms of legitimacy, accountability, transparency, confidentiality, and representativeness.
Distribution	(General)	General category: does not fit elsewhere, general
	Vulnerability	References unequal exposure of certain communities or neighborhoods to climate impacts and risks. Mentions social, economic, cultural, or economic drivers (such as lack of social safety nets, employment insecurity, discrimination, etc.) of vulnerability unpinning unequal ability to adapt to changes.
	Inequality	References unfair baseline conditions at the individual and community levels. This includes lower class status, health outcomes (such as cancer and heart disease rates), educational attainment levels, and higher income unequal across racial, gender, and age groups.
	Access	References unequal access to resources and capacities to support adaptation to ongoing/future climate impacts. This includes fair access to adequate housing, education, water, sanitation and health services, green space, financial assets, etc. for the purposes of building climate resilience.
Recognition	(General)	General category: does not fit elsewhere, general
	Past	References historically entrenched forms of exclusion based on race, ethnicity, gender, age, ability, etc. This includes mentions of systemic inequality, racism, sexism, homophobia, age discrimination, etc.
	Present	References diversity and inclusion in ongoing policy making and planning. This includes mentions of civil society/non-profits, community asset development agencies, rights and welfare-based associations, BIPOC activism, youth organizing, etc.
	Future	Reference longer term aspirations, values, and imaginaries of a just future. This includes mentions of racial/ethnic reconciliation, intersectional feminist ideals, feminist/queer liberation, climate transformations, Green New Deal, etc.



Early Insights

From our sample of 25 cities, some examples have emerged (*not a complete list*):

- Procedural: mostly outreach, such as public educational campaigns (Columbus); but exceptions include climate advisory and/or stakeholder committees (Baltimore) and community workshops and planning meetings (Boston, Atlanta, DC); etc.



Early Insights

From our sample of 25 cities, some examples have emerged (*not a complete list*):

- Distribution: improving access to cooling services and facilities (Columbus); low-income housing weatherization and energy assistance (Denver, Indianapolis); youth employment and workforce training for the ‘green economy’ (Houston); neighborhood retrofitting, community empowerment and anti-displacement (Los Angeles); etc.



Early Insights

From our sample of 25 cities, some examples have emerged (*not a complete list*):

- Recognition: city-wide forum on racism to recognize historic injustices (Atlanta); racial equity and reconciliation working groups (Boston, Dallas); fostering health equity especially among vulnerable populations (Detroit, Indianapolis); etc.



Early Insights

From our sample of 25 cities, we see that:

- The prevalence of tools and data to help assess local/regional exposure to climate impacts (especially heat, flooding, and air quality) and socioeconomic vulnerability. There is some common approach to assessing vulnerability, but specific indicators vary (e.g., age, communities of color, gender, disability, sexual orientation, etc.). Many cities remain at this descriptive stage.
- Many cities recognize that climate change will exacerbate historical injustice and create new inequalities, but there lacks consensus around what needs to be done in response.
- Of the adaptation responses that we cataloged, there is variable progress being made to further equity and justice (especially along its different dimensions).
- Often equity/justice actions focus on process, i.e., designing representative decision-making arrangements, public engagement/communication (mostly one-way). There are fewer actions that seek to redress distributional inequities and even fewer that focus on recognitional justice.

Research Implications

There is movement! Cities are proactively thinking through how to design and implement climate equity and justice actions. They are also evaluating approaches through which to integrate these priorities into broader policies and agendas.

- However, there is no common understanding of what equitable/just actions ought to include and what/how to evaluate these actions to benchmark progress.

Cities tend to first approach ‘low hanging fruits’ rather than structural changes to address climate injustice and inequity. There seems to be a mismatch between rhetoric and actual action.

- Is this a function of awareness or can it be attributed to institutional barriers?

There is a need for more work to catalog experiences on implementation and to think through common assessment frameworks (*that are community-engaged, inclusive/transformational, and can ensure collective progress*).

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