



Bringing Equity into Urban Adaptation Planning

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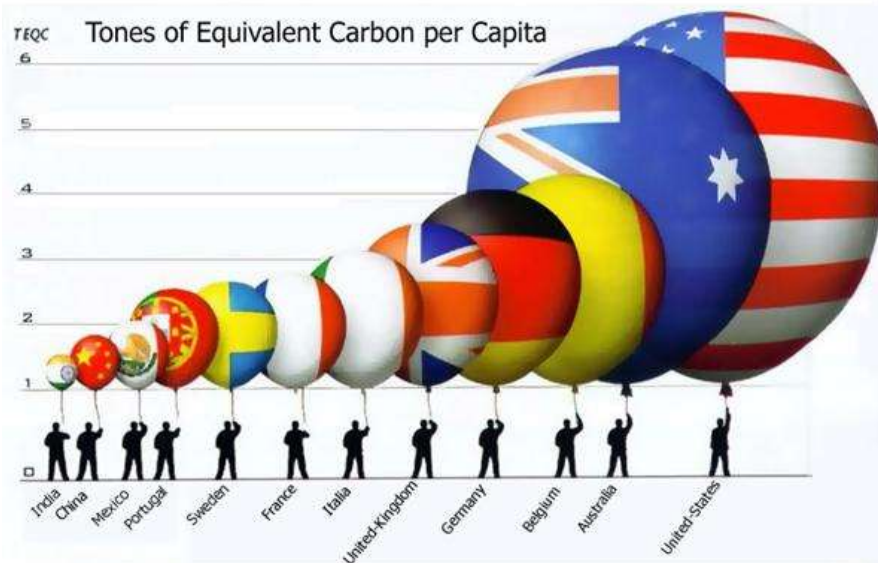
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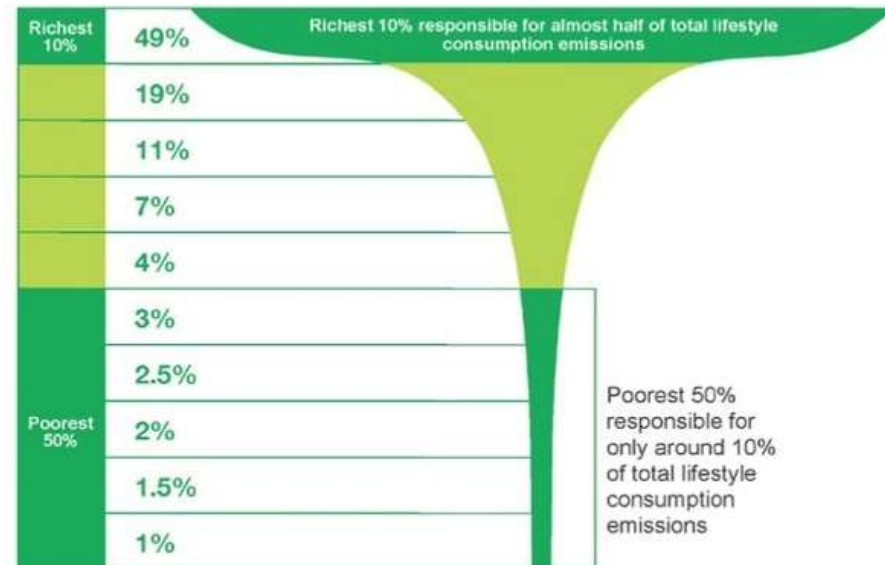
Equity and carbon emissions



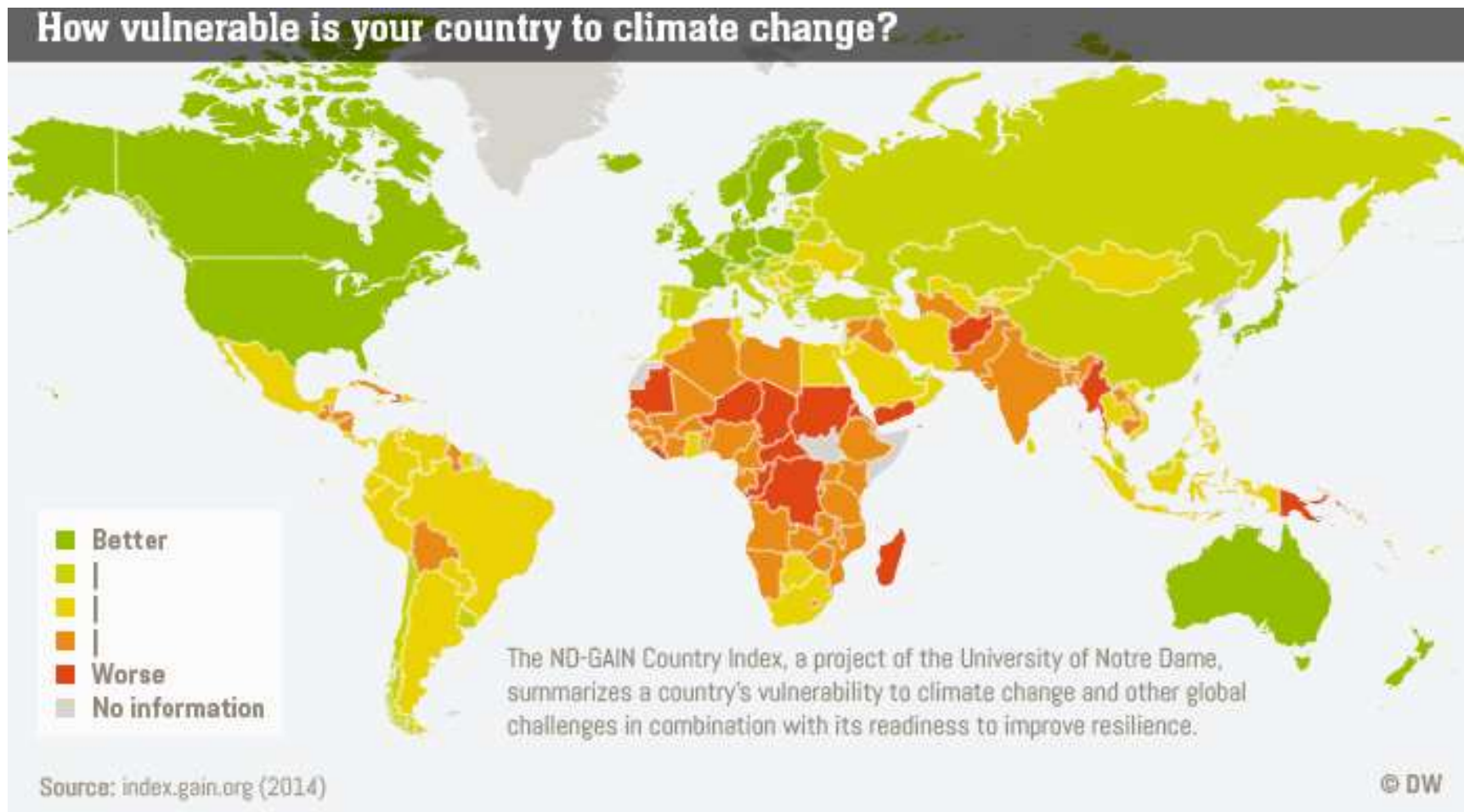
<https://ethicsandclimate.files.wordpress.com/2016/12/co2percapita.jpg>

<https://www.oxfam.org/en/research/extreme-carbon-inequality>

Percentage of CO₂ emissions by world population



Equity and climate vulnerability





**Equity and Climate Adaptation
Inequalities in capacity to adapt**

Union Beach, 2013

Equity, environmental and climate justice



<https://www.nytimes.com/2019/06/17/opinion/climate-racial-justice-new-york.html?smid=nytcore-ios-share>

Advancing Climate Justice: Transforming the Economy, Public Health and Our Environment
A 20th Anniversary National Climate Justice Conference Organized by WE ACT for Environmental Justice



The new EPA Chief **Lisa Jackson** makes her first public appearance since being confirmed as the new EPA Administrator at WE ACT's Advancing Climate Justice Conference, January 30, 2009



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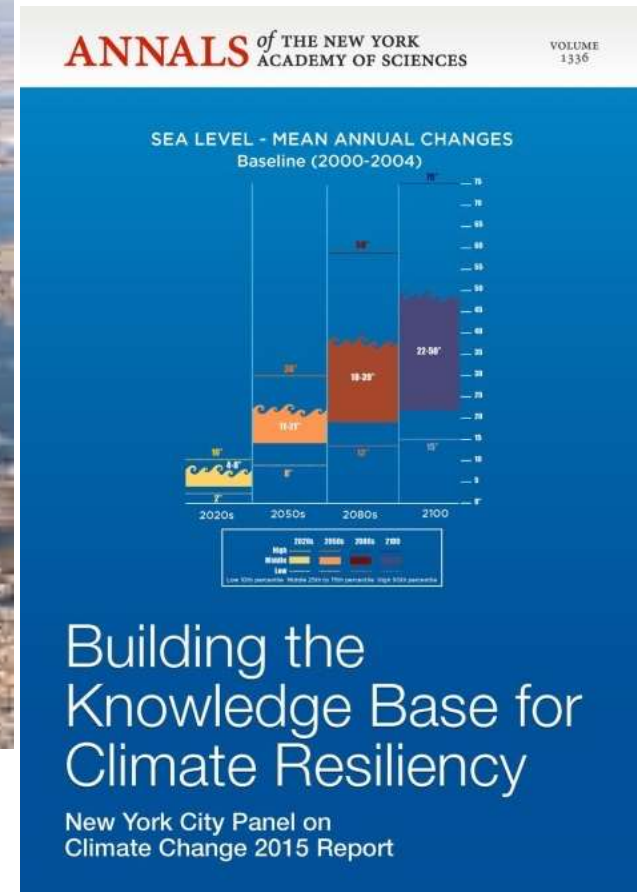
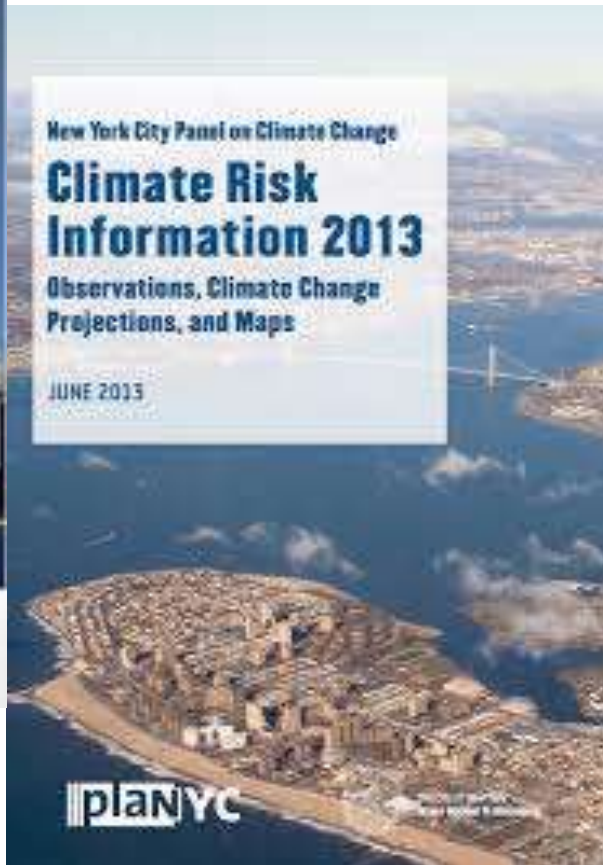
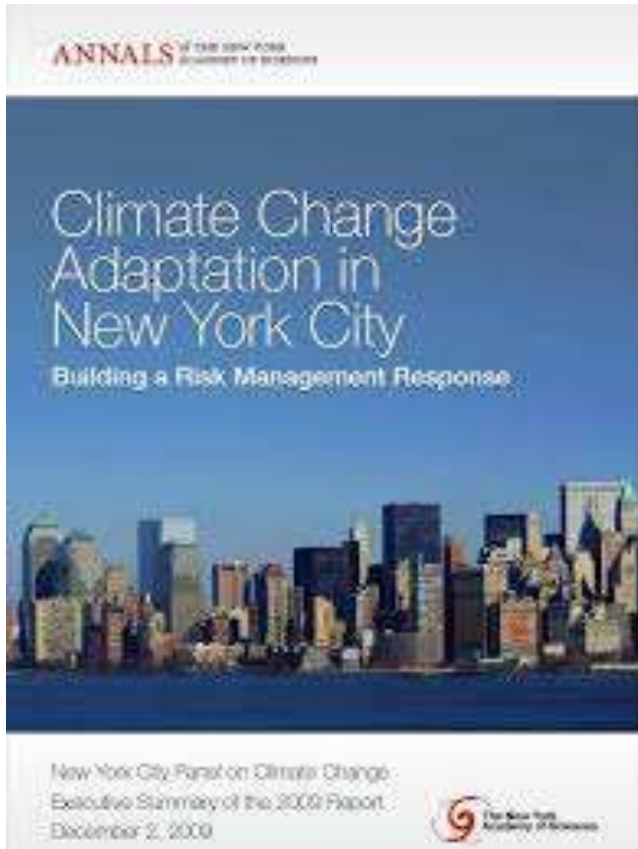
New York City Panel on Climate Change (NPCC): Workgroup on Community-Based Assessment of Adaptation and Equity

**Link to full New York City Panel on
Climate Change 2019 Report:**

<https://www.nyas.org/annals/special-issue-advancing-tools-and-methods-for-flexible-adaptation-pathways-and-science-policy-integration-new-york-city-panel-on-climate-change-2019-report-vol-1439/>



New York City Panel on Climate Change: 2008-2015



Equity Work Group: Research tasks

- Assess social vulnerability patterns and identify variables or indicators to track vulnerability at the neighborhood level
- Investigate how local community perspectives can be incorporated in adaptation planning
- Examine how other cities are incorporating equity into adaptation plans in order identify best practices

Methods

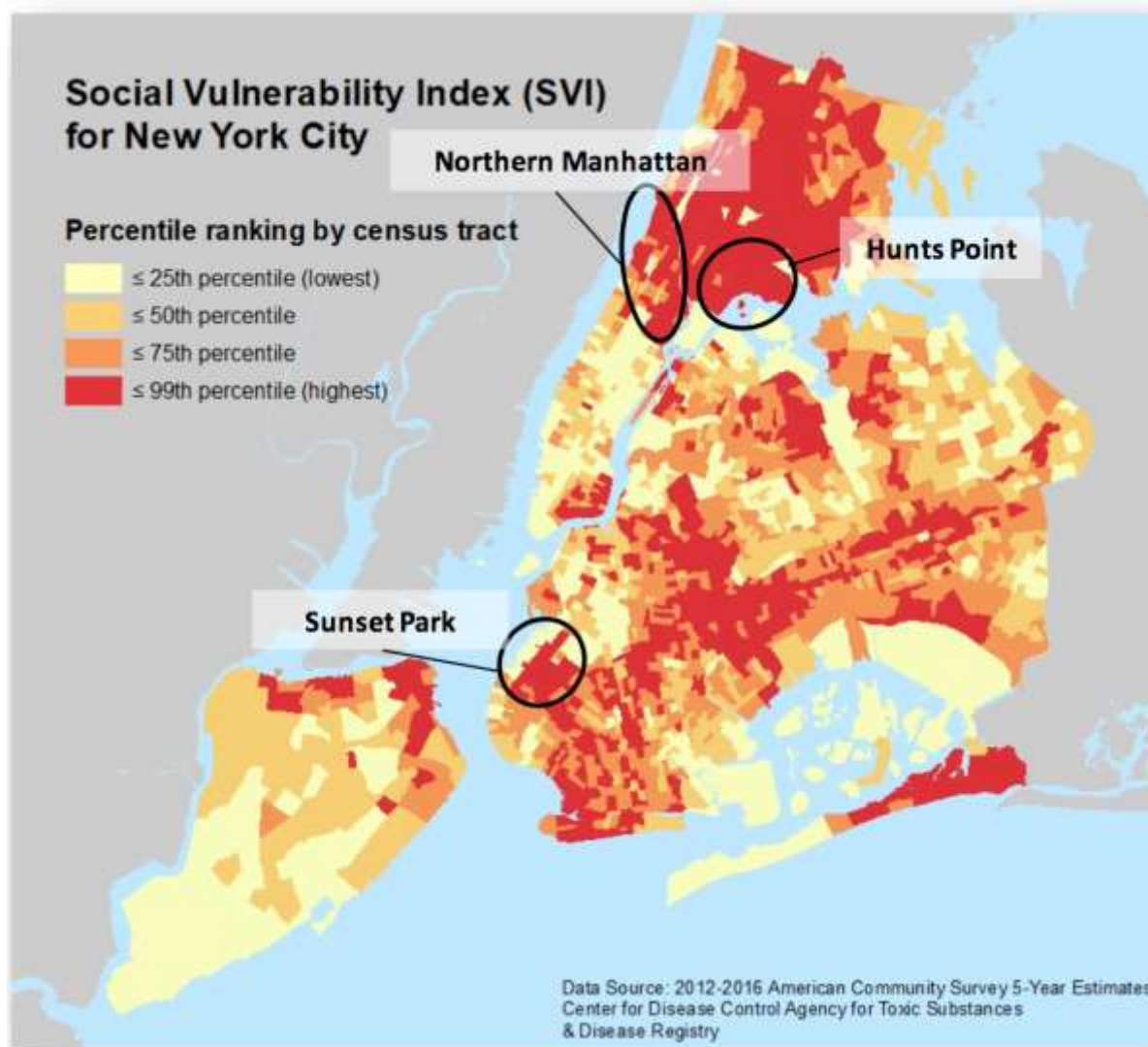
- Coproduction approach -- full collaboration with EJ communities as members of the work group
- Social vulnerability mapping
- Interviews with city officials, representatives of community groups, and scientists participating in adaptation efforts (New York, Boston, Baltimore, Philadelphia, Newark)
- Review of climate adaptation planning documents



Guiding framework: Three dimensions of equity (based on McDermott et al. 2013)

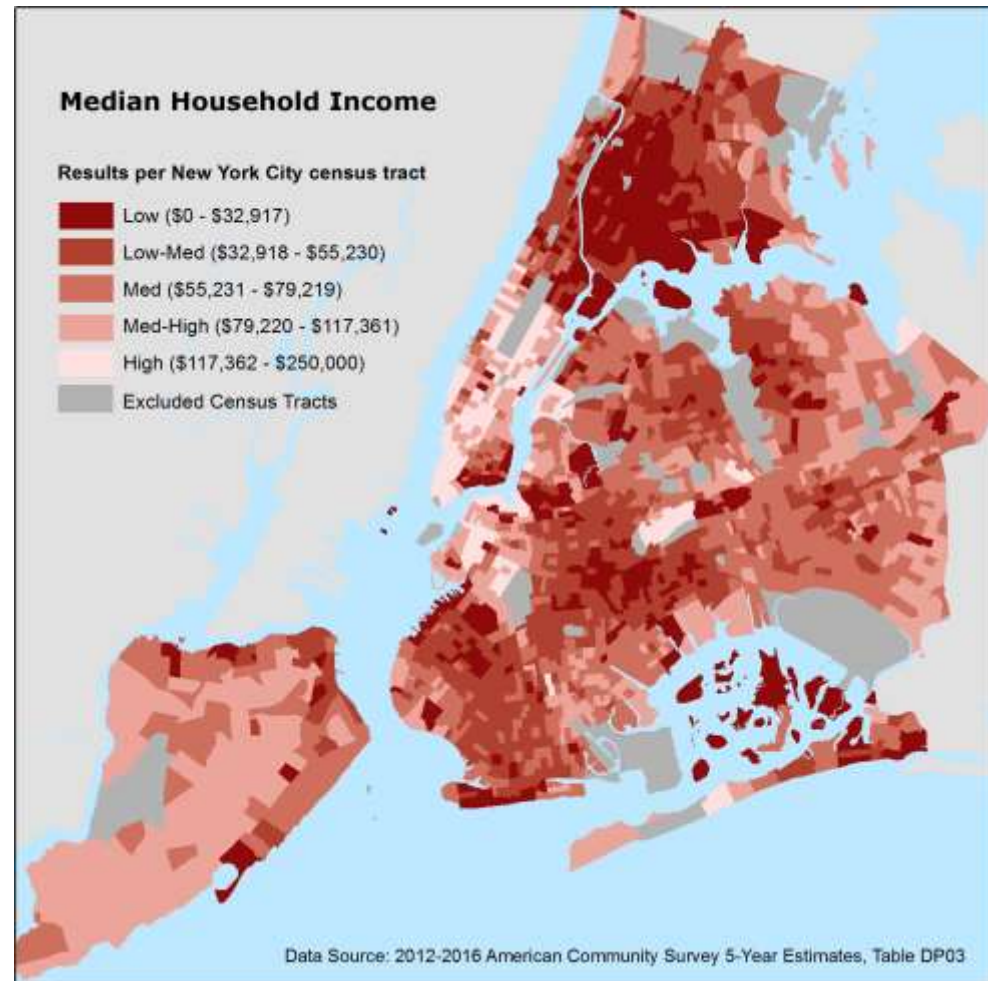
- *Distributive equity*: Emphasizes disparities across social groups, neighborhoods and communities in vulnerability, adaptive capacity, and the outcomes of adaptation actions.
- *Contextual equity*: Emphasizes social, economic and political factors and processes that contribute to uneven vulnerability and shape adaptive capacity.
- *Procedural equity*: Emphasizes the extent and robustness of public and community participation in adaptation planning and decision-making.

Assessment of social vulnerability: Index methods



Assessment of social vulnerability: single indicators

- Access and functional needs populations
- Educational attainment
- English fluency
- Female-headed household
- Foreign-born population
- Income
- Older adults over 65
- Poverty
- Race/Ethnicity
- Rent burden



Community Case Studies





Sunset Park/Brooklyn

- Population: 126,381 people
- Median hh income: ~\$38,000
- Diverse neighborhood composition dominated by Latino (46%) and Chinese (35%) immigrants
- More than half of the population have limited English proficiency and many lack high school education
- Waterfront designated as a Significant Marinetime Industrial Area (SMIA); intensive industrial land use and infrastructure; Gowanus Canal (a Superfund site); electric plants; commercial waste station



Hunts Point, Bronx

- Population: 27,204 people
- Median household income: ~\$23,000
- Neighborhood is predominantly made up of African-Americans (74.6%) and Hispanic (22.2%)
- About 1/3 of population have limited English proficiency and many do not have a high school diploma.
- Home to the Food Distribution Center, wastewater treatment plant; waste transfer station; multiple expressways; automobile shops; part of the South Bronx SMIA



West Harlem/Northern Manhattan

- Population: ~700,000 people
- Historically African-American and Latino; currently experiencing an increase in white and Asian populations
- Over 20% of the residents live in poverty
- Home to the MTA bus depots, North River Sewage Treatment Plant; major truck routes; waterfront north of 125th Street

Insights from community case studies

- Contextual equity
 - Double exposure to climate stresses and gentrification and development pressures
 - Overlap between climate stresses and environmental justice issues (e.g. facilities siting, air pollution, runoff)
- Procedural equity
 - Desire to move beyond public meetings about adaptation planning
 - Desire for community involvement in all phases of adaptation planning (e.g. tree planting - want to be involved in where the trees get planted)

Cross City Analysis: Identifying Best Practices

New York	Boston	Baltimore	Newark	Philadelphia
8.5 mill	673,184	614,664	281,764	1.57 mill
32% white 22% black 29% Hisp	45% white 23% black 19% Hisp	27% white 62% black 5% Hisp	13% white 49% black 34% Hisp	35% white 41% black 14% Hisp
\$35,508 pci	\$40,237 pci	\$29,449 pci	\$18,553 pci	\$24,685 pci
19% below poverty	21% below poverty	22% below poverty	28% below poverty	26% below poverty

City	Baltimore	Boston	Newark	New York City	Philadelphia
Distributive equity	Key areas				
Air quality	X	-	X	X	X
Affordability of flood insurance	-	-	-	X	-
Brownfield remediation	X	X	-	X	-
Building community capacity	X	X	-	X	X
Community land trust	X	-	X	-	-
Community vulnerability assessment	X	X	-	X	X
Energy retrofitting	X	-	-	X	X
Equitable access to	-	-	-	X	X

City	Baltimore	Boston	Newark	New York City	Philadelphia
Procedural equity	Key areas				
Avoidance of overly technical language	X	-	-	-	-
Community representatives and organizations as part of advisory boards	X	X	X	X	-
Community meetings	X	X	-	X	X
Public, telephone, and online surveys	X	-	-	X	X
Public forums and workshops	X	X	-	X	-
Youth convening	X	-	-	-	-

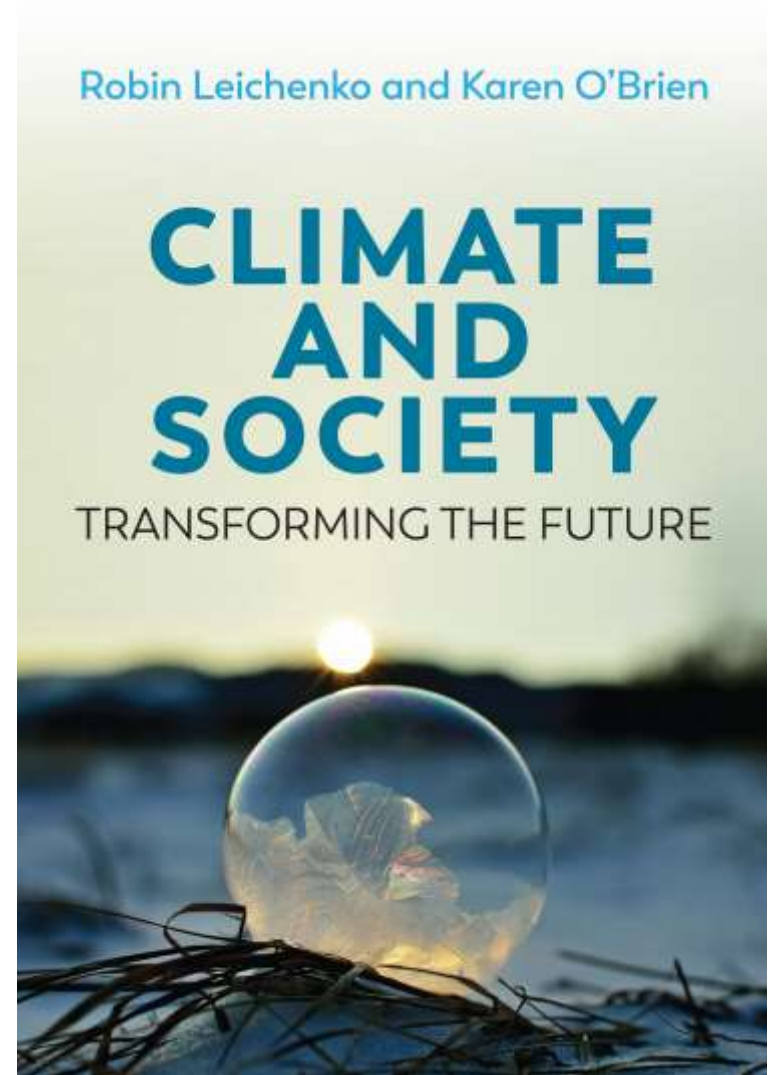
City	Baltimore	Boston	Newark	New York City	Philadelphia
Contextual equity	Key areas				
Commitment to maintaining a diverse workforce	-	-	X	X	X
Hire equity consultants to train city staffs	X	-	-	-	-
Link adaptation to broader inequity issues	-	X	-	X	-
Recognize the legacy and impacts of structural racism and racial inequality	X	X	X	X	X

Insights from cross-city analysis

- **Distributional equity** –this is what cities are most familiar and most comfortable with – maps to help with targeting resources
- **Procedural equity** -- happening mostly along the lines of traditional public participation models rather than collaboration or co-production models (communities want this deeper engagement)
- **Contextual equity** –recognition/acknowledgement of larger scale processes (e.g. structural racism, development pressures and gentrification) but very limited capacity to address

Conclusions

- Climate change is an equity issue
- Addressing climate change in a sustainable manner requires that we bring equity into adaptation and mitigation efforts
- Climate change as an opportunity to bring equity into urban planning



NPCC: Workgroup on Community-Based Assessment of Adaptation and Equity

NPCC Team Members

- Sheila Foster (Co-Lead)
- Robin Leichenko (Co-Lead)
- Khai Hoan Nguyen (PhD student and project manager)
- Gary Yohe
- Rae Zimmerman
- Howard Kunreuther
- Elisa Petkova
- Reggie Blake

External Members

- Malgosia Madajewicz (Columbia Univ)
- WEACTION
- UPROSE
- The POINT

NPCC 2019 Report

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- Sea Level Rise
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- *Community-based Assessments of Adaptation and Equity*
- Resilience Strategies for Critical Infrastructures and Their Interdependencies

Section 3. Charting Adaptation Pathways

- Indicators and Monitoring
- Perspectives on a City in a Changing Climate

Conclusions and Recommendations



Link to full New York City Panel on Climate Change 2019 Report:

<https://www.nyas.org/annals/special-issue-advancing-tools-and-methods-for-flexible-adaptation-pathways-and-science-policy-integration-new-york-city-panel-on-climate-change-2019-report-vol-1439/>