



# Advancing equitable partnerships: frontline community visions for coastal resiliency knowledge co-production, social cohesion, and environmental justice

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## ABSTRACT

Community-based organizations (CBOs) in frontline coastal communities grapple with social and environmental injustices compounded by climate change risks. In response, CBOs have developed deep expertise in climate adaptation tailored to their local communities. Yet these groups are often effectively excluded from resilience planning processes that are top-down and involve perfunctory and often performative consultations. This paper asks: What do community leaders seek from adaptation planning, and how do they recommend such processes be improved? Drawing on the experiences of ten CBOs in coastal New York and New Jersey, the majority representing BIPOC environmental justice communities, this article advances community-driven priorities for coastal resilience planning outcomes and processes. We conducted structured 60–90-minute interviews with ten CBO leaders between February–March 2022, collaboratively completed an iterative content analysis of the interview data and community plans, and workshopped core findings in multiple sessions and conversations with participating CBOs through early 2024. CBO leaders had consensus on resilience planning priorities: they oppose top-down approaches where planners bring a predetermined agenda, and seek true partnership through a relational approach that values grassroots perspectives to co-produce equitable and just strategies to address climate risk. Recommendations for decision-makers center on the need to build on existing community-led plans, invest in community leadership within planning processes, act with transparency to foster trust, partnership and co-planning with communities, and self-evaluate their practice. Lessons for researchers seeking to support community leadership within resilience planning include the need to establish lasting and mutually supportive relationships with community partners to enable knowledge co-production.

## 1. Introduction

Community partnerships to advance the co-production of knowledge for adaptation and resilience are vital as climate change accelerates, compounding social and environmental injustices experienced in

frontline communities.<sup>2</sup> Within the New York-New Jersey metropolitan area (NY/NJ), where many coastal communities already experience inequitable environmental burdens (Bautista et al., 2015), an additional layer of environmental injustice is generated by climate change, which heightens the risks posed to frontline communities through flooding

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<sup>2</sup> The term frontline communities is used in this article to represent communities situated on the front line of the struggle for climate justice. Alternative terms used to describe these communities include disadvantaged communities (Justice40) and environmental justice communities (United States Army Corps of Engineers) (The White House, 2022; Shannon, 2022; USACE, 2022). Frontline communities are often made up largely of black and brown communities, also referred to as black, indigenous and people of color (BIPOC) communities.

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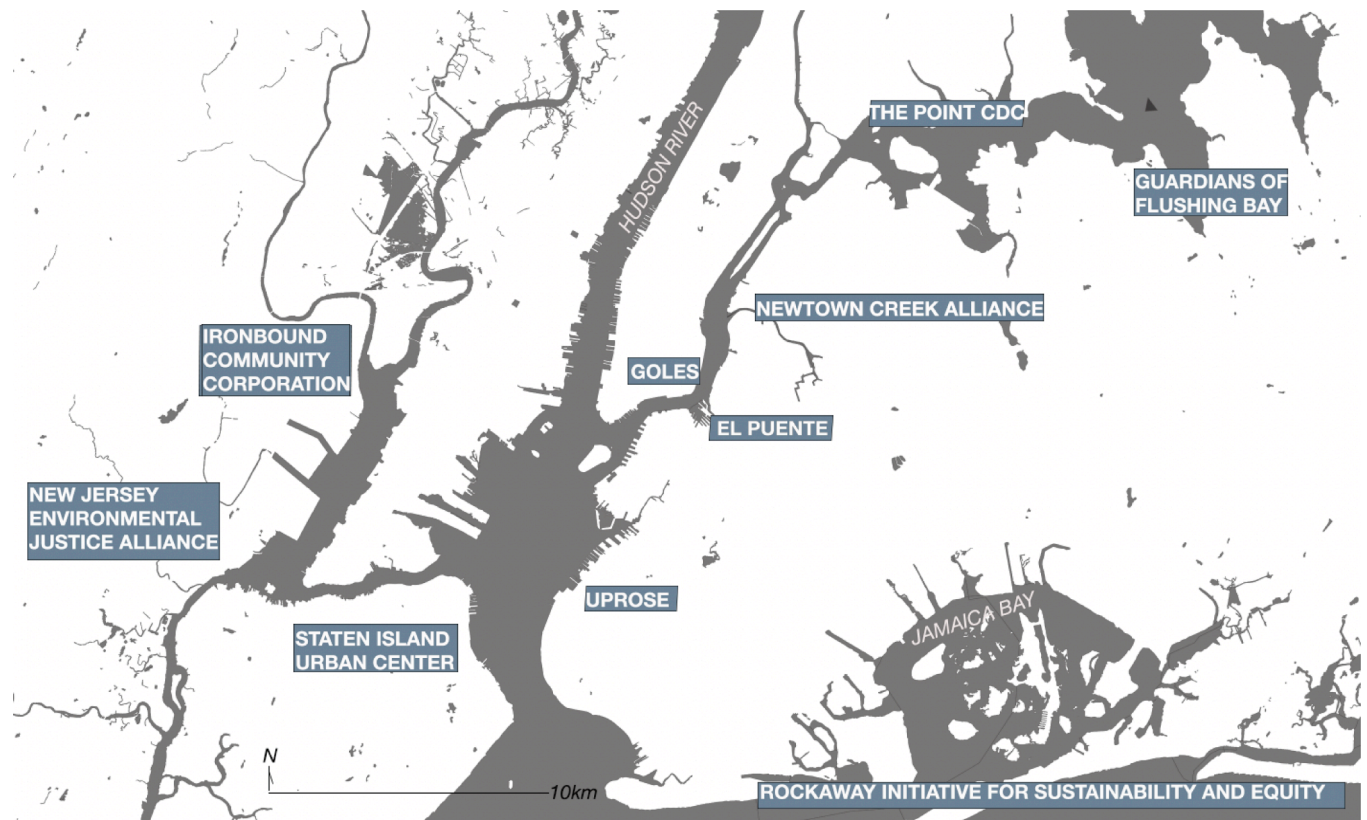


Fig. 1. Sites of CBO participants; Hudson/Raritan estuaries and bays. Source: Authors; data from USGS.

(DuPuis & Greenberg, 2019), and other climate hazards such as extreme heat (Bock et al., 2021). Within NY/NJ, frontline communities are vulnerable to toxic contamination carried by floodwaters, due to their locations within coastal flood zones dominated by brownfields and polluting industries (Rudge, 2021; Foster et al., 2019), a legacy of environmental racism in land use planning (Arroyo et al., 2023; Anguelovski, 2016). Social cohesion and environmental justice for frontline communities are further threatened by resilience responses that exacerbate disparities between populations, for instance through the phenomenon of environmental gentrification, which occurs when property values within an area increase alongside resilience improvements, displacing less affluent community members in favor of wealthier newcomers (Checker, 2020; Graham et al., 2016).

As NY/NJ confronts increasing climate risk and the necessity for multi-billion-dollar resilience plans, it is critical to prioritize community co-production processes and address the 'double burdens' of climate and environmental injustice. Future weather events will likely include more severe storms such as Superstorm Sandy in 2012, which hit frontline coastal communities across NY/NJ particularly hard (Bautista et al., 2015), and Hurricane Ida in 2021, which broke rainfall records, bringing deadly flooding to NY/NJ, the greatest impacts again falling on frontline communities (Maldonado & Honan, 2022). Tidal flooding, or blue sky flooding, also affects frontline communities with increasing frequency as sea levels rise (Foster et al., 2019). Equitable flood risk management plans for frontline coastal communities are essential, both within NY/NJ (Fig. 1) and beyond.

Through these experiences, community-based organizations (CBOs) from frontline communities within NY/NJ have developed extensive coastal resilience planning knowledge. This knowledge is critical to ensuring equity and effectiveness in ongoing city and state projects and plans, as well as federal studies such as the United States Army Corps of Engineers (USACE) New York – New Jersey Harbor and Tributaries Coastal Storm Risk Management Feasibility Study (NYNJHATS),

initiated in response to widespread damage caused by Superstorm Sandy (USACE, 2022; USACE, 2019). However, whether and how local knowledge and community-based expertise will be part of these ongoing studies remains an open question.

Participatory planning and co-production of knowledge are often proposed as a panacea for structural inequalities within policy and planning (Satorras et al., 2020). Unless these processes and the knowledge they produce are translated into justice-oriented action, they may fail to address, and perpetuate or even deepen, existing inequities (de Bruijn et al., 2022; Chambers et al., 2021; Berry et al., 2019). Although much discussed, co-production of climate adaptation knowledge remains rare (Chambers et al., 2021; Holland, 2017) and challenging to actualize in planning (Satorras et al., 2020; Moser, 2016) and research (Jagannathan et al., 2020). Details of the 'how' for adaptation are urgently needed (Bernal et al., 2022). Consequently, community priorities and knowledge remain under-represented in resilience practice and scholarship (Molino et al., 2020), particularly regarding research which highlights community efforts at a localized level rather than in terms of broader trends (Rudge, 2021; Molino et al., 2020; Klenk et al., 2017). This article seeks to address this gap, advancing restorative justice through foregrounding the priorities expressed by environmental justice communities, often sidelined within academic and professional conversations, and modeling a process of co-production in research with these communities.

Within the densely urbanized waterfront areas of NY/NJ, this article examines the following question: how can coastal resilience planning effectively deliver initiatives that produce social and ecological benefits, and establish equitable planning processes? Drawing on structured 60–90-minute interviews with ten CBO leaders between February–March 2022, the project team collaboratively completed an iterative content analysis of the interview data and community plans, and workshopped core findings in multiple sessions and conversations with participating CBOs. This article presents findings on how coastal

**Table 1**  
Community-led plans, as identified by participants and RCCP research.

| Organization                                                                                  | Community-Led Plan(s)                                                                                              | Organization Partners                                                                                                                          | Topics                                                                                                                                                           |
|-----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| El Puente (EP)                                                                                | Green Light District Sustainability Initiative;<br>Our Air! ¡Nuestro Aire!                                         | The New York Community Trust;<br>NYS Department of Environmental Conservation;<br>NYC Department of Health;<br>Queens College; Pratt Institute | 'Place-keeping'; anti-gentrification; environmental justice; affordable living; arts and culture; education; green spaces; air quality; and, health and wellness |
| Good Old Lower East Side (GOLES)                                                              | LES Ready;<br>Healthy Communities Map                                                                              | New York State Health Foundation;<br>Hester Street Collaborative;<br>Urban Justice Center                                                      | Disaster preparation and response plan; community support network map                                                                                            |
| Guardians of Flushing Bay (GFB)                                                               | Flushing Waterways 2018 Vision Plan                                                                                | Riverkeeper                                                                                                                                    | Community connections; industrial resilience; green infrastructure; clean water stewardship; Waterfront Alliance WEDG sites; Billion Oyster Project              |
| Newtown Creek Alliance (NCA)                                                                  | Newtown Creek 2018 Vision Plan                                                                                     | Riverkeeper                                                                                                                                    | Industrial resilience; living shorelines; community connection; stormwater solutions; green infrastructure; planning; wildlife; clean water                      |
| Rockaway Initiative for Sustainability and Equity (RISE)<br>Staten Island Urban Center (SIUC) | Greater Rockaway Community and Shoreline Enhancement Plan<br>Maritime Education, Recreation, and Cultural Corridor | National Fish and Wildlife Foundation<br>Staten Island Foundation<br>Waterfront Alliance                                                       | Youth employment; green economy; community stewardship; and education and awareness<br>Enhance waterfront area of Staten Island's north shore                    |
| The Point Community Development Corporation (The Point CDC)                                   | South Bronx Community Resiliency Agenda                                                                            | Kresge Foundation;<br>New York City Environmental Justice Alliance (NYC-EJA)                                                                   | Support community resilience capacity building projects                                                                                                          |
| United Puerto Rican Organization of Sunset Park (UPROSE)                                      | Green Resilient Industrial District (GRID)                                                                         | Protect Our Working Waterfront Alliance (POWWA)                                                                                                | A just transition toward green development for Sunset Park                                                                                                       |

resilience efforts have failed NY/NJ communities, and outlines recommendations co-produced with CBO leaders to inform improvements in future resilience research and planning. It proposes an approach of 'true partnership' to resilience planning. Finally, it describes methods to inclusively reflect community goals in public resilience plans for the NY/NJ region and offers a vision for reinventing coastal flood protection planning around shared expertise, collaborative decision making, social cohesion and restorative justice.

### 1.1. Toward inclusive practice: Coastal community resilience initiatives in NY/NJ

Within the United States, legally-binding support for environmental justice issues has accelerated rapidly at the federal and state levels, yet details of spending and processes for ensuring community priorities and input require refinement. The "Justice40" Initiative commits 40% of the overall benefits of relevant federal investments to historically-underinvested ('disadvantaged') communities (The White House, 2022). In 2020, New Jersey became the first state to require mandatory permit denials for facilities with disproportionate environmental impacts on overburdened communities, defined as those where at least 35% of households are low-income; at least 40% of residents are minority or members of a State recognized tribe; or, at least 40% of households have limited English proficiency (New Jersey Environmental Justice Law, 2020). In New York State, the Climate Leadership and Community Protection Act (2019) mandates that disadvantaged communities receive 35% of overall benefits of spending on clean energy and energy efficiency programs, projects or investments, with the goal of achieving 40% (New York State, 2022). Additionally, the Cumulative Impacts Act (2022) requires analysis of potential cumulative impacts on disadvantaged communities, and prohibits the approval or renewal of state permits for projects involving disproportionate and inequitable burdens on disadvantaged communities.

These governmental initiatives supporting environmental justice have relevance for major infrastructure investments targeted toward

coastal resilience, including those prompted by the Inflation Reduction Act (2022) and those planned by the USACE (2019).<sup>3</sup> In March 2022, interim guidance issued by the Assistant Secretary of the Army for Civil Works, consistent with the Justice40 Initiative, directed the USACE to establish an equitable approach to resilience planning by "putting disadvantaged communities at the front and center of studies" (Shannon, 2022). The USACE has identified NY/NJ environmental justice communities, defined as:

*"Communities that meet established thresholds for low-income (having populations with greater or equal to 23.59% below the federal poverty level) and minority (greater than or equal to 51.1% identify as minority) and live in proximity to at least 1 pollutant in the 90th percentile for the country" (USACE, 2022, p. 118).*

Within New York City, all six significant maritime and industrial areas (SMIA) (Department of City Planning, 2011) include environmental justice communities located within storm surge zones (Bautista et al., 2015), while approximately 63% of census tracts within the NYNJHATS area qualify as environmental justice communities (USACE, 2022). More frequently highlighted, however, is how the NY/NJ coastline presents a complex engineering challenge, and the high land values which limit potential to buy back lands needed to construct proposed infrastructure (USACE, 2022).

Communities across NY/NJ seek meaningful participation in NYNJHATS planning processes; however, their efforts to engage with decision makers face a multitude of challenges. These include jurisdictional overlaps, as the non-federal partners for the project are the New Jersey Department of Environmental Protection, New York State Department of Environmental Conservation, and New York City, each with differing land use and planning regulations (USACE, 2022). Additionally, alongside the needs of disadvantaged communities, the USACE must balance compliance with federal funding allocations and timelines set through the H.R.7575 - 116th Congress (2020). USACE methodologies such as the calculation of benefit-cost analysis are weighted in favor

<sup>3</sup> The multi-billion-dollar NYNJHATS project proposed by the USACE stems from the Disaster Relief Appropriations Act (2013), which allocated funds toward resilience planning for vulnerable coastal communities and to address damages caused by Superstorm Sandy (USACE, 2019).

**Table 2**  
Community-Based Organization Participants.

| Organization and neighborhood                                               | Year founded | Organization representative (s)   | BIPOC-led | Environmental justice community (USACE definition) |
|-----------------------------------------------------------------------------|--------------|-----------------------------------|-----------|----------------------------------------------------|
| El Puente, Williamsburg, Brooklyn (EP)                                      | 1982         | Frances Lucerna and Dani Castillo | Yes       | Yes                                                |
| GOLES, Manhattan (Good Old Lower East Side)                                 | 1977         | Damaris Reyes                     | Yes       | Yes                                                |
| Guardians of Flushing Bay, Queens (GFB)                                     | 2015         | Rebecca Pryor                     | No        | Partial                                            |
| Ironbound Community Corporation, Newark, New Jersey (ICC)                   | 1969         | Maria Lopez-Nuñez                 | Yes       | Yes                                                |
| Newtown Creek Alliance, Brooklyn (NCA)                                      | 2002         | Willis Elkins                     | No        | Partial                                            |
| New Jersey Environmental Justice Alliance (NJEJA)                           | 2002         | Melissa Miles                     | Yes       | Yes                                                |
| RISE, Queens (Rockaway Initiative for Sustainability & Equity)              | 2005         | Name withheld                     | No        | Partial                                            |
| Staten Island Urban Center (SIUC)                                           | 2016         | Kelly Vilar                       | Yes       | Yes                                                |
| The Point Community Development Corporation, Hunts Point, the Bronx (TPCDC) | 1994         | Dariella Rodriguez                | Yes       | Yes                                                |
| UPROSE, Brooklyn (United Puerto Rican Organization of Sunset Park)          | 1966         | Elizabeth Yeampierre              | Yes       | Yes                                                |

of economic factors, rather than community benefit, and may require revision before these can adequately deliver on aspirations for environmental justice (National Academy of Sciences, 2022; National Science and Technology Council, 2023).

With the growing realization that co-production of knowledge by communities and government planners is essential to equitable coastal flood protection comes the responsibility for public agencies to establish collaborative planning processes and address major structural barriers to meaningful community contributions. Planning initiatives which attempt to address these issues include the New York City Panel on Climate Change (NPCC) Workgroup on Community-Based Assessment of Adaptation and Equity,<sup>4</sup> which seeks to incorporate equity into adaptation planning at a city level (Foster et al., 2019). A ‘Climate Knowledge Exchange’ established by the New York City Mayor’s Office of Climate and Environmental Justice convened an ongoing series of workshops with similar goals (City of New York, 2022). Meanwhile, the Regional Planning Association (2023) has created a map with NY/NJ community organizations which elevates the visibility of community-led resilience plans to enable more cohesive planning across state boundaries despite jurisdictional overlaps.

Effective collaboration with communities requires investment in communities to strengthen capability, capacity, and empowerment, recognition for community-led plans, and transparent acknowledgement from decision makers in cases where it is not realistic to address all actions within these plans (Steiner et al., 2023). Eight CBOs involved in this research project shared community-led resilience plans, and plans where they felt that leadership had been shared during the planning process (Table 1). These plans were developed by communities, with CBO leadership. Some were conducted through partnerships with agencies, or with other community organizations, while others were self-funded by CBOs or through support from charitable foundations.

Many of these community-led plans target greater equity in the distribution of resilience spending, genuine partnerships with decision makers, and leadership development to grow decision makers for the future, to advance community goals (Table 1) (Good Old Lower East

Side (GOLES), 2022; SIUC, 2022; TPCDC, 2022; El Puente, 2022; UPROSE, 2019; Good Old Lower East Side (GOLES), Hester Street Collaborative (HSC) Urban Justice Center Community Development Project (CDP), 2015; Moitra and Velasquez, 2020; Riverkeeper & Guardians of Flushing Bay, 2018; Riverkeeper & Newtown Creek Alliance, 2018; Rockaway Initiative for Sustainability and Equity (RISE) et al., 2021). Equity in infrastructure is central to environmental justice understandings of resilience, as green infrastructure adaptations can catalyze environmental gentrification (Checker, 2020; DuPuis & Greenberg, 2019). Through the physical infrastructure produced, social and civic infrastructure may be negatively impacted (Loh et al., 2023), as gentrification displaces frontline communities, exacerbating environmental injustices, impacting social cohesion and reducing community resilience (Fainstein, 2018; Graham et al., 2016). Consequently, “just green enough” investments are sometimes promoted to improve resilience without triggering gentrification (Anguelovski, 2016).

## 2. Co-Producing Qualitative Research: Case Study Methods

Deploying multiple case study lenses, and building on approaches from Rudge (2021), the findings of this article draw on analysis of the transcripts and notes from 60 to 90 min long-form interviews conducted between February-March 2022 with ten CBO leaders in coastal New York and New Jersey, the majority representing BIPOC environmental justice communities. The interviews were framed as part of a process to communicate CBO priorities on their future visions and proposed processes of adaptation to a policy and research audience. The findings, process, and proposed outputs were collaboratively reviewed in a virtual group session with interviewed organizations in May 2022, circulated to individual organizations between October and November, and shared again in early 2023 and 2024, followed by two rounds of group conversation and review from which additional revisions to the article were made and quotes were incorporated, as discussed below.

To ensure that the data collection and analysis’ priorities and messages aligned with the realities of organizations, this article emerged from a co-production process between Columbia University, a metropolitan-level advocacy organization, New York City Environmental Justice Alliance (NYC-EJA), and ten CBOs with environmental justice involvement within NY/NJ (Table 2). The collaborative project aims to

<sup>4</sup> Convened by NYC Mayor Michael Bloomberg in August 2008 and composed of 20 volunteer members (see Grzywacz, 2022).

pilot research-practice partnerships grounded in community knowledge (Annex I). Internal and external grants to the project fund a full-time senior director, student assistants, and honoraria for interviewees. The core themes and research questions, interview questions, process for selection and outreach, methods of analysis, mechanisms of collective drafting and analysis of this article, and outputs<sup>5</sup> were discussed and agreed upon collectively by a project team of 4 to 5 people that met twice monthly,<sup>6</sup> with priority in decision-making going to the representatives of the advocacy organization and the members with deep practice experience in adaptation and environmental justice.

### 2.1. Selecting participants

Guided by the the New York City Environmental Justice Alliance, the project team selected ten CBOs involved in environmental justice from across NY/NJ (Table 2). Many regional waterfront resiliency planning initiatives span these areas, and the project team sought representation from multiple locations to capture diverse coastal resilience challenges and responses. While previous studies (e.g. Rudge, 2021) conducted surveys widely distributed via email to CBOs, a smaller-scale approach was chosen to seek a greater depth in responses.

### 2.2. The interview process

The intention for the interviews was to gather overall themes from the participants, along with specific examples of how these different neighborhoods vary in challenges, needs and experiences. Eight interview questions, and specific follow-up prompts, were co-designed over seven weeks of regular team meetings between NYC-EJA and Columbia University researchers. The questions (Table 3) aimed to provide space for CBOs to state their perspectives, strengths and foci broadly, and to identify spaces for improving processes of planning and investment on their own terms, rather than responding to specific priorities.

The project team first interviewed participants via Zoom for 60 to 90 min, with project team members from NYC-EJA and the university taking it in turns to ask questions and make notes. Participant organizations were compensated with an honorarium of \$500 in recognition of the time taken to share their knowledge and perspectives.<sup>7</sup> In recognition of their role as an equal partner in the project, some grant funds were used to partially compensate NYC-EJA for their time commitment. The honorarium was a critical component of building trust with CBO leaders often reluctant to extend time and knowledge to researchers without compensation; many participants shared previous experiences of encounters with policymakers or researchers that were simply knowledge extraction without follow-up communication or compensation.

### 2.3. Collaborative 'co-production' in analysis

The details of how co-produced research processes unfold remain little described, and each step represents a space where practitioners are often excluded (Chambers et al., 2021). For this article, after all interviews were concluded, the project team rewatched the interview videos, and reread the transcripts, conducted using Trint, and summary notes which had been typed by team members during and immediately after the interviews. Over a fortnight, all team members added comments to a shared document containing all interview summaries; these

<sup>5</sup> Including the value of a peer-reviewed publication versus other outputs and action.

<sup>6</sup> The project team sought to explicitly address intersectionality through a project team which included membership from BIPOC community members with lived experience of environmental justice issues, critical throughout the design and implementation of the interviews and analysis.

<sup>7</sup> Protocol number IRB-AAU0268.

comments flagged repeating themes, referenced specific quotes and recalled emphases from conversations. The NYC-EJA member identified, in longer form comments, core themes and findings emerging across interviews. Other team members then added their thoughts to these comment boxes, either supporting or questioning these themes. A short written draft that synthesized the themes was discussed and prioritized by the full project team in weekly Zoom meetings, forming the basis for a working paper.

After the working paper was drafted, quotes proposed for usage were circulated individually to participants for review and approval. The paper with quotes was then shared directly with the CBOs involved. Feedback from participants on the key themes identified was used to further refine and strengthen the analysis of the information gathered through the interviews. CBO leaders contributed further detailed comments and identified points to prioritize, strengthen and sharpen over January 2023 and in a virtual 90-minute gathering as well as in January 2024 to respond to reviewer revisions and provide updates and edits; their time in both instances was partially recognized with subsequent \$500 and \$250 honorariums.

## 3. Findings and Discussion

The *Building Partnerships for Inclusive Climate Resiliency* interviews highlight potential pathways to reform current problematic practices in coastal resilience planning. While frontline community participants expressed diverse aspirations and concerns, commonalities emerged on approaches to systemic issues (Table 4). Across interviews, participants expressed frustration with current resilience planning processes and advocated for new models of community leadership, power-sharing, and partnerships to enable a just transition toward a more resilient future.

Participant CBOs centered their concern on the systemic realities of environmental injustice and tokenistic practice in community engagement. Participants challenged current concepts of resilience for the implied expectation that frontline communities must endure continued hardships. Instead, participants called for social cohesion and a sense of community belonging to be recognized as essential elements of resilience, referenced intersectional challenges, and envisioned holistic solutions which extend beyond the climate resilience space. Within planning processes, leadership from those with lived experience and reciprocal relationships with decision makers were identified as important keys to true partnership.

Despite the challenges identified, participants expressed energy to continue efforts to build a better future for their communities. All ten CBOs envision a just future where local knowledge and locally developed plans drive planning and implementation for resilience initiatives; where resources are allocated toward community capacity building; where agencies recognize local knowledge as essential and respect local organizations as equal partners in the process, and where a foundation of shared decision-making enables the growth of trusting relationships between communities and agencies, supporting the co-creation and sharing of knowledge. Participants also seek greater accountability from planning agencies through honest and thorough dialogue in which community goals and concerns are actively discussed and effectively addressed.

### 3.1. Address environmental injustices

CBOs connect the realities that many frontline communities reside in flood-vulnerable areas due to historical planning decisions to the ongoing structural racism apparent in present-day plans and processes. The past and present then layer to perpetuate injustices: as one CBO leader observed regarding a proposed development, problematic siting continues despite common knowledge that "you don't want to... build affordable housing in a floodplain that... is highly at risk and contaminated, you don't want the poor to be the buffer of the rich." (Name withheld).

**Table 3**  
Co-Produced Interview Questions.

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- (1) How have you/your community experienced climate change impacts like hurricanes, flash flooding, or extreme heat/heatwave-related issues in your community?
- (2) What, if anything, is being done in your community about these climate change-related concerns and by whom? Which have been the most equitable and fair and how was this achieved?
- (3) Have you/your organization participated in climate adaptation/resilience planning in the past?
  - (a) Overall, did you find the planning processes to be inclusive, fair, and equitable?
- (4) How do you think we can make future planning more responsive to your community’s needs? What kinds of projects would you like to see happen and why?
- (5) What have you found useful in creating resilience in your community?
  - (a) What does resilience look like in your community and what aspects of that are important to you? (This can include climate resiliency, coastal resiliency, and community/social resiliency)
- (6) Are climate impacts intersecting with other challenges in your community?
- (7) What future do you imagine for your community with resources and resilience?
  - (a) What resources and support do you and your organization need to participate effectively in future planning initiatives around coastal resilience?
- (8) Is there anything you would like to share/discuss that we haven’t touched on today?

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**Table 4**  
Key Themes from CBO Interviews.

| Findings                                                     | Community messages                                                                                                                                                                                                           |
|--------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Address Environmental Injustices                          | Climate justice and environmental justice are intertwined in frontline communities. Adaptation initiatives must foreground and address longstanding racialized inequities of environment, policy, and funding.               |
| 2. Begin with a Community-Led Approach                       | Inclusive community representation must commence at the very beginning of decision-making processes, so that communities can play a part in defining terms of engagement, priorities, and processes.                         |
| 3. Recognize and Incorporate Existing Community Plans        | Building on existing community plans can save time and resources which would otherwise be spent on community engagement, and can reduce risk of consultation fatigue.                                                        |
| 4. Reframe Resilience                                        | Resilience implies an expectation that some communities repeatedly recover from disasters, and can be reframed toward addressing community climate risk for an environmentally just future.                                  |
| 5. Build True Partnership Rather Than Tokenism               | Planning processes centering investment in communities, partnership and procedural equity can assist relationship-building, power-sharing, and community leadership.                                                         |
| 6. Recognize Lived Experience as Knowledge and Leadership    | Lived experience and local knowledge and leadership can bring richer contextual information and more holistic perspectives to planning processes.                                                                            |
| 7. Center Social Cohesion to Strengthen Resilience           | Social cohesion strengthens community connections, supports communication, collaboration, and inclusion, and enables mutual aid in disaster responses.                                                                       |
| 8. Structure Reciprocal Relationships With Decision Makers   | When communities and decision makers work together for mutual benefit, opportunities arise for each party to advance their agendas.                                                                                          |
| 9. Invest in Community Leadership Within Resilience Planning | Communities require resources and consideration of community needs to support community capacity and capability for leadership within planning processes.                                                                    |
| 10. Reform Structures narrowing Power and Privilege          | Problematic structures of power and privilege must be reformed to advance equitable power-sharing, resource-sharing, partnership and collaboration in planning processes.                                                    |
| 11. Toward New Forms of Participatory Research and Planning  | Resources to support networking and collaboration between CBO’s, increased integration across agencies, and closer connections between agencies and communities have potential to deliver more equitable planning processes. |
| 12. Community Visions for a Just Future                      | Equitable planning processes conducted in partnership with communities can drive a just transition to a sustainable future.                                                                                                  |

In Staten Island, new commercial developments have displaced a natural ecosystem which has formerly acted as a buffer zone for a frontline community:

*“We lost a wetland to development even after that wetland saved homes from the ravages of Hurricane Sandy. After all these recent hurricanes and... storm surges... we still completely lost a major wetland... 1800 trees are gone... People who live in mobile homes and hundreds of other homes were spared because of those 1800 trees, because of that wetland and still, that wetland is being destroyed to build a store.”* (Vilar, SIUC).

In Newark, participants felt that frontline communities had received an insufficient local and federal response and resources to address the impacts of Hurricane Ida, due to a higher prevalence of renters and public housing residents rather than homeowners in their area:

*“FEMA didn’t even declare us a disaster area... They were busy declaring other suburbs, all the white suburbs... [our neighborhood has] 78% renters. So when they think about property damage, you have to have a property owner complaining about it... [we have] absentee landlords. So it created a little bit of a housing crisis afterwards. You know, folks also are largely undocumented who live in the basement apartments. Those are illegal apartments. So the city was condemning those apartments and forcing people to leave and they didn’t have the means by which to leave. Disaster relief didn’t help them.”* (Lopez-Nunez, ICC).

Across multiple areas, participants view flood resilience within frontline communities as often sacrificed to protect other areas:

*“For years, we’ve been saying, why don’t you put a valve [on the stormwater drain to prevent stormwater coming up through the drain]? They said, because then it would flood other areas of the city. And that to me says that the city feels it is ok to flood low-income communities like ours, surrounded by a high density of public housing. We are not a priority in the city’s eyes.”* (Name withheld).

These insights resonate with broader findings suggesting that resilience planning often mirrors and compounds patterns of structural inequality, as climate adaptations protect the privileged at the expense of others, layering climate injustices upon environmental injustices (Graham et al., 2016). Distributional inequities in environmental burdens and benefits across BIPOC communities in NY/NJ are well established, such as injustices in distribution of green space (Bock et al., 2021; Meerow, 2020; Foster et al., 2019).

Similarly, environmental justice organizations more broadly seek to address underlying racial inequities in the creation and perpetuation of imbalances in power and privilege (Arroyo et al., 2023; Loh et al., 2023; Ezell & Chase, 2022). Critical race theory and intersectionality perspectives recognize that race, class, gender, accessibility needs, age, and socioeconomic status collectively shape people’s experiences; this understanding has informed social vulnerability indices utilized by agencies in resilience planning (Ezell & Chase, 2022; Foster et al., 2019). However, social vulnerability frameworks can be problematic, obscuring qualitative differences between communities, ignoring intersectionality nuances, and reinforcing deficit perspectives which fail to recognize community strengths (Tuccillo & Spielman, 2022; Foster

et al., 2019; Nel, 2018).

### 3.2. Begin with a community-led approach

In the experience of the CBO participants, decision makers approach community engagement in a top-down manner, engage with communities too late, and bring a pre-set agenda containing no space or time for communities to shape plans and processes. Consequently, CBO participants identified that their voices remain unheard or others attempt to speak for them and the communities that they serve.

*“They create an advisory group, but the agenda has already been created... This table has been set and then we’re being brought to the table to eat food that is being force fed to us... I was upset, because the way that it had been set up was very top-down. They had determined the priorities for us.”* (Yeampierre, UPROSE).

When community voices are excluded from deciding what is on the table for discussion, this translates into poor outcomes in plans and action:

*“They’re like, oh no, but we already have a pre-designed plan for what we’re doing, how we’re doing it, and get in or get out... There’s this disconnect between... what happens on the community level, which is so valuable and what actually happens in... policy, institutes, government... we’re the appropriate people to bridge that gap. It can’t be bridged from the top down.”* (Rodriguez, TPCDC).

CBOs identified their work at the local level as demonstrating an opposite approach:

*“We were... able to bring in a demographic of people in this conversation around coastal resiliency... which were mostly public housing folks... we found that lots of advocates in our area were speaking for NYCHA residents, and creating a narrative for them... we can’t work like that. We need to give people agency, specifically low income black and brown folks in environmental justice communities who are consistently ignored.”* (Reyes, GOLES).

It is crucial to get planning processes right, engage early, and allow communities to set the pace and lead the process, as processes determine the end result of “what we get” (Rodriguez, TPCDC). CBO leaders want to be at the table sooner: “We would like to know what’s going on earlier in the process” (Elkins, NCA). Early engagement by communities in planning processes benefits all parties, allowing decision makers to access local knowledge, and enabling continuity with previous planning processes; “it saves time if we are there from the very beginning” (Yeampierre, UPROSE).

CBO participants also concurred that planning in partnership with communities can enable more efficient use of resources and help prevent the default lack of awareness of local contexts, avoiding plans progressing in directions which communities are unwilling to endorse. Communities want planning processes to proceed at a pace that meets their needs, changing the decision-makers’ narrative of “we have to do this fast and get it done” (Rodriguez, TPCDC).

For a future where frontline communities are prioritized within planning, researchers agree that inclusive community representation early within decision-making processes is critical (Berry et al., 2019; Bautista et al., 2015). Norström and colleagues (2020) argue that communities should have a share in setting the agenda; this implies involving communities from the outset, power-sharing, collaborative research design, and transparent two-way communication processes to avoid tokenism; collectively, these knowledge co-production principles might address inadequacies identified by communities in current planning practices.

### 3.3. Recognize and incorporate existing community plans

Many frontline communities have invested significant time and

energy into community planning processes, only to see community-led plans unrecognized and underutilized, part of a growing “graveyard of research plans” (Rodriguez, TPCDC). Participants expressed the importance of having community-led plans “given some sunshine” by decision makers, across political changes and as incorporated into broader resilience planning and project implementation (Vilar, SIUC).

Centering community plans can be practical and tangible; requiring that “before we start doing more research and planning... find out what is happening with all the plans and research that has already happened” (Rodriguez, TPCDC). When any planning process starts, a process of “intentional acknowledgement and analysis” of previously existing plans should form the first step (Castillo, EP). The analysis should not only identify the content of previous plans, but analyze how these plans have been or will be activated, both in order to avoid duplication and to ensure that earlier ideas are not neglected as newer ideas come to the fore. This benefits decision makers; they are better off “not starting from scratch with some of the stuff, and looking to the community for a... baseline of what the people that live and work in the area would want to see happen with a planning process.” (Elkins, NCA).

The discontinuity between community plans and official plans resonated across stories of disappointing coastal resilience planning processes:

*“Beginning in 2000, there were probably three or four processes... focused around the redesign of the shoreline, to create a pocket park, to create access to the water... green space... the bulkhead eventually collapsed in 2016, and then the city realized it was a major issue they need to fix. And then they basically came and presented their plans... it had none of the elements that the community had asked for numerous iterations before. And they were saying... ‘Well, this is where we are, and it’s a little too late to change our plan. We have money we need to spend now...doing this infrastructure upgrade. And... we’ll try to add some improvements later’.”* (Elkins, NCA).

Many CBOs listed examples where project implementation completely bypassed goals identified through community engagement, such as the East Side Coastal Resiliency Project.

*“We’d gone through about six to eight months of community engagement, working in good faith with the city... and then for a couple of months, the city then were deliberating on their own and then came back with a final design that did not look like what was co-created with community... there was a feeling of... bad faith co-collaborative efforts with the city and in community engagement process... and people felt like their time was wasted.”* (Reyes, GOLES).

In a Bronx-based project funded through the resilience grants allocated after Superstorm Sandy, spending similarly disregarded priorities identified through the planning process:

*“When push came to shove, and it was time to actually use that money... they scrapped the community vision and went ahead with a vision that was older than the community vision, that went against a lot of the things that we needed.”* (Rodriguez, TPCDC).

Beyond existing plans, CBO leaders also underscored how implementation – through resources, priorities and practices – is another critical arena needing reform (Name withheld). For example, local communities should receive priority in contracts stemming from resilience plans, and there is potential to develop a decision making rubric which incorporates these priorities. Similarly, resources for new processes can start local: “I wish that we could do more to actually initiate plans with the community... rather than just having more plans on the shelf” (Name withheld).

The disconnect between community priorities and implementation echoes at a larger scale the fact that frontline communities within NY/NJ have produced community-led plans which share a myriad of ways to achieve community resilience; yet, previous research indicates that plans emerging from bureaucratic top-down processes are more likely to

be resourced and ultimately implemented, in comparison to those generated through grassroots resilience planning initiatives (Rudge, 2021; Checker, 2020; DuPuis & Greenberg, 2019; Klenk et al., 2017). The New York City Charter, section 197-a, sets out a process for community-led plans to be approved by the City Planning Commission and adopted by the City Council, perhaps through sponsorship from local Community Boards, offering improved opportunities for communities to leverage decision-making power; yet even when these plans are officially adopted, their recommendations are not always implemented (Poblete, 2022). However, communities can and do shape climate adaptation actions; when plans fail, the ‘solution space’ often reverts to actions taken by those on the ground (Haasnoot et al., 2020). These actions may include advocacy with politicians; some CBOs interviewed have formed connections with community board members and members of congress.

### 3.4. Reframe resilience

Frontline community CBOs called out historic framings of resilience which perpetuate inequalities in policy:

*“Something that I think we question, in terms of what the expectation is... of our communities in particular to continue to endure and continue to look to ourselves and to address issues and inequities and injustices that clearly need to be addressed at a... deeper systemic level.”* (Lucerna, EP).

Historic injustices permeate CBOs’ daily work; much time is consumed by addressing ongoing physical realities, such as teaching parents to mitigate the risks of toxic pollution to their children: “That’s a role we’re forced to play... and it’s complicated. Like, we got 10 people and we aren’t superheroes, it’s a little bit over or above our pay grade.” (Lopez-Nuñez, ICC).

*“Resiliency is a word that we have a real problem with... we are really grappling with that word because historically we’ve had to be resilient to survive, and we don’t think that we should have to be. We really want a word that encapsulates us moving forward and moving forward in a way that makes it possible for our people to thrive and to survive the changes that are coming.”* (Yeampierre, UPROSE).

Communities consider social cohesion as a key aspect of community resilience, and oppose resilience responses which undermine social forms of resilience. Communities perceive that resilience initiatives often focus exclusively on infrastructure, disregarding the potential negative effects that plans calling for migration or retreat may produce for social cohesion, or the impacts of gentrification (Miles, NJEJA). Community plans such as the Green Resilient Industrial District (GRID), developed by UPROSE (2019), and the Maritime, Education and Recreation Corridor (MERC) developed by Staten Island Urban Center (SIUC, 2022), actively seek to maintain social cohesion and counter gentrification risk by creating local jobs for local people through an industrial waterfront which incorporates circular economy, eco-industrial and environmental justice principles.

A resilience paradigm focused on transformation and adaptation, aiming to bounce forward into an environmentally just future, might serve frontline communities better than the present expectation that communities build climate resilience, endure catastrophic events, bounce back, and recover repeatedly (Moser et al., 2019; Meerow & Stults, 2016; Bautista et al., 2015; de Backer et al., 2015; Shaw & Maythorne, 2013). Adaptation actions since Superstorm Sandy suggest that the city expects future flood risk to continue to compound existing social inequalities; for example, boilers have been raised and generators provided to New York City Housing Authority apartment blocks (Graham et al., 2016; Bautista et al., 2015).

Although policy makers, planners, and people in positions of power regularly discuss resilience, communities note that these decision makers often fail to consider who this resilience planning serves; assumptions around resilience should be made explicit, ensuring

transparency and shared understanding (Moser et al., 2019). A recognition of the role structural racism plays in resilience planning, for instance, in the distribution of flood protection infrastructure, has caused researchers to call for a shift away from the concept of resilience, toward an “abolitionist” climate justice which centers history, intersectional experiences and solidarity (Loh et al., 2023; Ranganathan & Bratman, 2021). A people-centered, holistic approach to resilience proposed by de Backer et al. (2015) recommends a transition toward a regenerative economy with strong civic and economic infrastructure, and regional resilience responses which account for natural system boundaries.

### 3.5. True partnership rather than tokenism

Communities want to speak for themselves and to influence outcomes; all participants emphasized this desire and energy. However, CBOs perceive that most decision makers do not share community priorities, and are unwilling to engage in true partnership. An important key to partnership is to recognize community-agency relationships as one “of equals” and ensure communities have opportunities to influence the process itself, as well as the plans created (Lopez-Nuñez, ICC).

*“We have elected officials who do not even see climate change or environmental justice as an issue or priority, who say one thing and vote another. We, the community, have had to create the climate change and environmental justice conversations, if we didn’t, Staten Island electeds would never even talk about it.”* (Vilar, SIUC).

Tokenistic practices in resilience planning appear widespread; one participant spoke of a sense that she had been invited to attend an event for a photo opportunity (Yeampierre, UPROSE). CBOs argued that to end tokenism, decision-making power must be shared, rather than processes of community engagement being carried out merely for decoration: “Am I sitting here so you can check a box? For the image? Or do I have DECISION-MAKING POWER?” (Rodriguez, TPCDC). Others shared experiences where they had decided to end their involvement with adaptation initiatives, as there were no genuine opportunities to influence change:

*“A lot of climate adaptation is... offensive... in terms of how it’s framed, there is [a resilience planning group] that we recently quit that table. They just have us there as token. So why are we wasting our time?”* (Lopez-Nuñez, ICC).

Tokenism was seen as an issue which affected both communities and agencies: “And the moment that I challenged them, the first thing they did was they called on the black program officer and I said, ‘Do not throw her under the bus.’” (Yeampierre, UPROSE). Having people of color within agencies is good, but not enough, and sending them to engage with communities can create other problematic dynamics (Rodriguez, TPCDC).

CBO leaders’ observations that decision-making processes often compound the disenfranchisement of BIPOC communities reverberates in scholarship (Checker, 2020; Bautista et al., 2015), as well as the observation that structural racism in present-day planning processes produces contextual inequities (Foster et al., 2019). Siting decisions regularly disregard community opposition to disproportionate polluting industries within BIPOC communities, while contaminated sites within these communities wait decades for remediation (Rudge, 2021; Checker, 2020; Bullard, 1994; Bullard, 1993), which often in turn delays or complicates adaptation efforts.

Procedural equity must be established through explicitly inclusive planning processes, which resource community contribution and build technical capacity among CBOs, to enable equitable representation for affected communities (Arroyo et al., 2023; Rudge, 2021; Ziervogel et al., 2022; Berry et al., 2019). Equitable community partnerships in planning can assist relationship-building and increase capacity for future engagement between those at the grassroots and the bureaucratic top,



transforming a top-down resilience planning model to a participatory and partnership-based paradigm which enables collaborative co-production of climate knowledge (Ziervogel et al., 2022; Moser, 2016).

### 3.6. Lived experience as knowledge and leadership

Several participants spoke of the importance of leadership from those with lived experience within frontline communities, including representation among decision-makers. Although individual representation alone is insufficient and can bring challenges as described above, CBOs clearly outlined their desire for change: “I want to see more planners of color... [and] processes that really center those with lived experience.” (Lopez-Nuñez, ICC).

*“I look forward to seeing young people who are in leadership roles right now, who are the educators of their families, who are bringing these conversations to their schools and their peers... I wanna see them in government... leading our communities in a way that really understands these problems.”* (Rodriguez, TPCDC).

*“We fundamentally have to change relationships of power. It has to be co-governance, shared power. It has to be leaderful. It has to be black, indigenous women of color led. The House has to be feminist and it has to be intergenerational.”* (Yeampierre, UPROSE).

Centering local knowledge and leadership is widely documented to mitigate ill-informed risk assessment and inadequate mitigation measures which occur when agencies lack detailed local data (Valente & Veloso-Gomes, 2020; Corburn, 2003). During the response to Superstorm Sandy, leadership from CBO staff with lived experience in local communities became extremely important, inspiring GOLES to partner with other agencies in a research study and community plan, LES Ready (Good Old Lower East Side (GOLES), Hester Street Collaborative (HSC) Urban Justice Center Community Development Project (CDP), 2015). The plan shared future disaster response recommendations based on local knowledge, and advocated for ongoing resources for communities, to create vibrant community centers and enable effective local emergency responses centered in social cohesion. Good Old Lower East Side (GOLES) (2022) later partnered with the NYS Health Foundation to develop a healthy communities map.

Government agencies often lack holistic perspectives, neglecting cross-jurisdictional issues and broader social, environmental, and public health contexts (Bautista et al., 2015). Enriched understanding results when traditional, local, indigenous, or experiential knowledge is valued alongside official or academic knowledge, knowledge hierarchies are dismantled, and opportunities exist to adapt, localize or indigenize frameworks (Norström et al., 2020; Schramm et al., 2020; Chu et al., 2018; Moser, 2016). Recognition that all knowledge is multiple, situated and contextual might address inadequacies identified by communities in current planning practices (Norström et al., 2020).

### 3.7. Social cohesion strengthens resilience

CBOs emphasized multi-layered social connections and a strong sense of place within frontline communities. Leaders discussed how personal narratives with place-based storytelling can be powerful tools to reveal the holistic interconnections that underpin social cohesion and community resilience. Similarly, they identified how an essential component of CBO work is “building... grassroots base, building relationships, building... social connectivity, amongst neighbors in our neighborhood” (Rodriguez, TPCDC), and how strong community infrastructure translates into advantages for neighborhoods when disaster strikes:

*“Communities that have... CBOs do much better in moments of disaster because there’s already a hub of folks who know who’s who and what’s what... there’s somebody who knows to check on certain people... who*

*can organize individuals towards a common purpose... So they already have a head start.”* (Miles, NJEJA).

Social cohesion and a sense of belonging were considered important prerequisites to community leadership in resilience planning:

*“Most of our community, their entire lives and their parents’ lives and their parents’ lives, they’ve been told that they don’t belong anywhere and everything around them tells them that...we’re not gonna be able to ask people to fight for the earth if they don’t have a speck of earth that belongs to them, that is telling them that they belong here.”* (Rodriguez, TPCDC).

CBO leaders underscore how social cohesion and a sense of belonging within a neighborhood are foundations for community resilience. Infrastructure-focused coastal resilience responses almost always carry perceptible threats to social cohesion and social resilience, through gentrification or managed migration (Lopez-Nuñez, ICC). For frontline communities, social resilience is always a priority, and not only as a response to natural disasters or climate change. Community plans like the South Bronx Community Resilience Agenda (TPCDC, 2022) include actions to support social connection and mutuality, such as the Be a Buddy program, a community initiative to promote community preparedness and ensure people check on elderly neighbors during extreme heat events.

These connections between people and places, as described by BIPOC CBO leaders, resemble kinship concepts derived from indigenous worldviews, which conceive of humanity and the natural world as interrelated, viewing interdependence as a strategy for the creation and preservation of thriving social-ecological systems (Whyte, 2021; Virapongse et al., 2016; Whyte, 2013). These perspectives suggest that communities mobilize kinship networks, both actual and metaphorical, toward collaborative resilience responses, with strong community infrastructure producing enhanced resilience during disasters and encouraging mutual aid and solidarity (Loh et al., 2023; Kim et al., 2018; Whyte, 2013; Morello-Frosch et al., 2011).

### 3.8. Reciprocal relationships with decision makers

For CBO participants, community planning is an inherently relational process, where true partnership must be built upon reciprocal relationships and must produce mutual benefits for communities and agencies. While relationships with decision makers can benefit communities, the reverse is also true; bureaucrats benefit when community partners assist them to achieve community engagement and to advance their agendas (Lopez-Nuñez, ICC). Communities recognized and valued external experts with integrity as important allies. Reciprocity, as described, manifests through small details of respect, listening, and sustained ‘showing up’:

*“Inclusive and... powerful collaborations and projects... The Deputy Commissioner of Parks Department was... there with us on a regular basis and he listened and... at one point was doing the PowerPoint presentation while one of the young people was presenting. [He] came... to our office and put himself in a position to listen and shared really honestly, these are the restrictions that I have. This is who I have to convince. These are the things I have to explain.”* (Rodriguez, TPCDC).

The literature on knowledge co-production acknowledges that government agencies’ capacity to gather accurate community-level information is often limited, since community engagement is an inherently relational process requiring trust, which takes time to build and therefore may present challenges in adhering to project timeframes (Ziervogel et al., 2022; Norström et al., 2020; Moser, 2016). Participatory researchers have found that community co-production processes can build community capacity, and support activism and advocacy, shifting relational dynamics of exclusion (Ziervogel et al., 2022). Iterative co-production processes where goals are collectively revisited and revised may actively strengthen networks and relationships (Ziervogel et al.,

2022; Norström et al., 2020; Moser, 2016).

### 3.9. Invest in community leadership within resilience planning

The importance of understanding community needs, and investing in meeting these needs to enable effective community leadership within resilience planning was raised repeatedly by participants. To catalyze community collaboration, CBOs seek to increase perceived relevance for climate change and emergency planning within community contexts where people are more worried about immediate issues:

*“Climate resiliency isn’t anyone’s priority in everyday life, not even our government... it has to be couched in terms that are immediately relevant to folks’ lives. Climate resiliency has to immediately, and visibly improve our quality of life in the moment, not at some point in the unknown future.”* (Miles, NJEJA).

*“The earth dying in even 10 years is not more critical than Maria who has to feed her child today and doesn’t know how she’s gonna do that.”* (Rodriguez, TPCDC).

One participant suggested that the way to make resilience planning relevant is to relate it back to public health issues:

*“[Climate change] can get very technical and inaccessible for some people... it just feels too big to be able to break into pieces, actionable pieces... So relating it back to public health has been a way to keep steps more actionable.”* (Reyes, GOLES).

Other participants spoke about the need for agencies conducting community engagement to recognize the barriers to community involvement and provide resources to build community capacity for participation, for instance through tailoring the timing and location of meetings, or by providing transport, childcare or food.

*“Government agencies can’t do community engagement... they need to partner with a local group. But then they say, ‘we don’t have resources’. That’s going to be tough. We need resources to partner with government agencies. People need to see immediate benefits from these climate conversations even if it’s just dinner..... You just can’t ask people to come out for three hours in the evening and not have dinner... You can’t ask working people to come to a random meeting in the middle of the day... Some people are going to have to be bused to the meeting. Some people are going to need to carpool. You can’t reach the whole community if you don’t provide resources for them to come to the meeting.”* (Miles, NJEJA).

Communities require resources, capacity, capability, and authentic partnerships with decision makers to achieve equitable, community-relevant planning and implementation for climate adaptation initiatives. El Puente’s (2019) Green Light District plan addresses “the disempowerment of gentrification” through community-led development initiatives (Henfrey et al., 2023) which combat extractive, profit-driven development through an intersectional, interconnected, “placekeeping” approach (Gray, 2023; Castillo, EP). The plan engages with arts, culture, health, education and environmental issues simultaneously, seeking to build a sense of belonging and ownership, improve material conditions and remain rooted in community (Castillo, EP). Current systems seldom support or resource these community-led pathways (Rudge, 2021; Giannetti, 2021); instead, planning processes serve economic growth, fail to address frontline community priorities, and create adverse localized impacts (Checker, 2020; Holland, 2017; Klenk et al., 2017; Raworth, 2017; Bautista et al., 2015; Morello-Frosch et al., 2011).

### 3.10. Power and privilege

Participants suggested that problematic structures of power and privilege must be restructured before true partnerships toward environmental justice become possible. As gentrification accelerates within coastal communities, generating proposals for luxury megatowers, and

bringing “whiter and wealthier” involvement within locally-led initiatives such as community gardens, those with lower incomes are threatened with displacement, and the need to maintain social cohesion and support environmental justice communities grows (Reyes, GOLES). Participants are well aware of this need: “We are going to flip this narrative of gentrification... and we’re going to take back our power to really be able to convene the community.” (Lucerna, EP).

To advance an environmental justice agenda, participants felt that the need for change must be admitted and addressed by those in positions of power: “We’re fighting against giants.” (Lopez-Núñez, ICC). Another participant shared a story about a white man who told the members of her organization that he was not comfortable talking about race (Yeampierre, UPROSE). Meanwhile, public conversations are frequently dominated by the voices of elected officials and others not from frontline communities, yet who hold decision-making power over the processes affecting these communities (Vilar, SIUC).

There was a sense that present structures of privilege are purposefully perpetuated by those in power: “I need a researcher... But you know why they don’t fund it, though, because they are so afraid that people will gather knowledge for knowledge’s sake.” (Miles, NJEJA).

*“All of that is... engineered, by the way in which funding and policy processes... about maintaining and sustaining this separation and siloing of communities as opposed to supporting coalition building and movement building among all of our communities.”* (Lucerna, EP).

These problems must be directly confronted within a new paradigm that does not divorce science from politics (Lopez-Núñez, ICC). “We need power that’s beyond suggesting, beyond feedback. We need decision making power... in terms of how money is used.” (Rodriguez, TPCDC).

*“It’s raining in the Arctic, part of the country is on fire, and we’re still having conversations about sharing power and resources because at the end, the biggest obstacle to us being able to change anything is privilege. People are not willing to give it up.”* (Yeampierre, UPROSE).

Power-sharing, partnership and collaboration, together with adequate resource allocation, have potential to build capacity both for communities and for decision makers (Ziervogel et al., 2022). For instance, collaborative co-production processes can provide decision makers with unique opportunities to access localized knowledge, or assist to build trust so that planning can proceed smoothly (Berry et al., 2019; Moser, 2016). In Scotland, legislation mandates community empowerment and co-production processes within public service delivery, sharing decision-making power with communities to strengthen democratic participation, although in practice, more advantaged communities with greater capacity remain more likely to engage in planning processes (Steiner et al., 2023).

Urban planning experts highlight the inequalities and accelerating gentrification often triggered by resilience initiatives, exacerbating community mistrust in decision makers (DuPuis & Greenberg, 2019). Without trust and justice, dissatisfied communities may mobilize to resist decisions that they are unhappy with, forcing the development of ‘created spaces’ where their views can be heard, such as public demonstrations or online petitions, an issue which might be preemptively addressed if ‘invited spaces’ such as public hearings for the expression of community concerns were available (Chiesi & Forte, 2022; Berry et al., 2019). After Hurricane Katrina, for example, New Orleans residents presented an example of ‘created spaces’ through their activism during the recovery phase (Morello-Frosch et al., 2011).

### 3.11. Toward new forms of participatory research and planning

CBO leaders see an imperative to create a system where environmental justice is central within planning processes, where communities and ecology are valued along with the economy, and where processes prioritize community voices, rather than development agendas.

Capacity building toward successful engagement, both for community members and their organizations, and for agencies, is essential. Participants expressed that, while there is strong local knowledge, they want the language to engage; “a lot of people in our community did not go to school for this, did not study environment, technology, resiliency, sustainability.” (Rodriguez, TPCDC).

*“I didn’t go to school for any of this... we are expected to know law, policy, science, organizing. I mean, what other field requires this breadth of knowledge from one person and to be able to work on multiple levels of society simultaneously?... We need information. We need training.”* (Miles, NJEJA).

Funding to support networking and collaboration between and across CBOs was another need identified: “Building relationships amongst our communities and our organizations is not funded.” (Rodriguez, TPCDC).

Participants challenged universities, agencies, and funders to develop improved models of community partnership, building trust and long term relationships with communities, and abandoning preconceived ideas in favor of allowing communities to set the agenda and decide how funds should be spent.

*“We need money to lead processes, and not money that comes attached with a plan already... we need support from experts who have the principles and values that we have... They need to train trainers in our community. They need to not helicopter into our community... I want to see them put their money where their mouth is... don’t just get \$100,000 to do a research project that we get \$5,000 out of, and then you leave.”* (Rodriguez, TPCDC).

Participants proposed numerous ways that agencies could engage more effectively, including by seeking greater integration and collaboration with other agencies. One participant shared a story about street intersection redesign where opportunities to integrate green infrastructure were not taken up: “If DEP sees an opportunity that’s fine, but it’s not part of DOT’s mandate or any other city agency when they’re doing big capital projects to think about stormwater” (Elkins, NCA).

Other suggestions from participants for agencies ranged from resourcing partnerships with CBOs in order to enable community participation; checklists for baseline better practices; contracting rubrics; demonstrating transparency to build trust; and allowing sufficient time for community engagement processes, rather than rushing to final decisions.

*“Where are there opportunities to slow down... decision making processes... because we need community members in those conversations... if we’re not moving at the speed that our people need us to move in, then all the policy in the world, without that community power... we’re gonna hit a wall there too.”* (Rodriguez, TPCDC).

These can be ‘made real’ in many ways, such as evaluation tools to assist agencies to self-assess and improve their community engagement processes (Rodriguez, TPCDC).

When public consultation is reconceptualized as an equitable partnership designed to enable continuous iterative dialogue, and processes of community planning are transformed through power-sharing and knowledge co-production, more equitable outcomes are likely to result (Norström et al., 2020; Moser, 2016), as well as longer-term processes that engage with structural imbalances in power (Rosen & Painter, 2019; Watson, 2014). Through investment in communities, for instance by dedicating funds to resource CBO participation, or sharing technical expertise to build community capability, agencies can support progress on community-led plans and mobilize local knowledge to illuminate interconnections between issues (City of New York, 2022; Rodriguez, 2022; Giannetti, 2021), reduce institutional compartmentalization (Satorras et al., 2020), and promote agency collaboration toward holistic solutions to flood risk.

### 3.12. Community visions for a just future

Participants described clear and ambitious visions for their communities:

*“The deeper context and source of what we might call resiliency is our being able to imagine a future that we ourselves are not just existing but we thrive in, and that we ourselves are active leaders in really creating, and recreating, and continuing to develop...The power of art and culture to bring people together in a space that allows for a real deep sense of connection and identity and belonging, that I think is really powerful in looking at how... we can create community and we can empower community... to think creatively... to imagine what we would want to see happen in our community, the conditions that we would want to exist so that we can live. But more importantly, thrive... This worldview to create this new reality, this new world predicated and based on principles and values that we all share with regard to respect and integrity, love and compassion... If we’re talking about climate change and our earth and how... we respect and honor the planet that we live on, that really comes from a deep commitment to love and to compassion.”* (Lucerna, EP).

*“I envision a future where there’s justice at the center, where people are getting along, where we have decolonized, where we’re working with each other in a way that is loving. And I know that sounds hippie-ish, but that’s what I envision, and an economy that is meant to nurture us and not to extract from us.”* (Yeampierre, UPROSE).

At the heart of community-defined visions for a just future is the notion that resilience has its foundation in strong social capital and social cohesion, and that disaster responses and resilience planning for the future are based in a culture of caring and community solidarity (Loh et al., 2023). As community leaders expressed, and broader findings reinforce, investment in strengthened capacity and capability to advance equitable community partnerships within planning processes remains an overarching need, both for communities and for decision makers (Molino et al., 2020; Holland, 2017). Otherwise, as CBO interviewees point out, participatory planning processes will continue to be extractive, captured by elites or business interests (Chu et al., 2018), and dominated by participants with scientific and technical expertise who do not recognize community knowledge and experience (Satorras et al., 2020).

At the neighborhood level, to achieve a just transition which supports systemic change and builds thriving, resilient and adaptable communities, community members require the necessary resources to move to a space of social cohesion and healing (Routledge et al., 2018; McCauley & Heffron, 2018; Gidley et al., 2009). With those resources, community leadership and co-produced community plans can provide pathways to healthy and thriving neighborhoods with green infrastructure, waterfront access and clean transportation and environmental conditions (Bennett et al., 2016; Virapongse et al., 2016).

## 4. Conclusion and Recommendations

Community-based organizations in New York and New Jersey have clear recommendations and strategies to improve knowledge co-production processes within coastal resilience planning. CBO leaders made a strong case for improved models of community partnership in resilience planning. Significant concerns around environmental justice were expressed, with many participants feeling that structural racism remains endemic within planning processes. The concept of resilience was actively critiqued by participants, who aspire to adaptation toward new and better futures, rather than reactive responses to disasters which may see frontline communities forced to endure more of the same. Communities seek true partnerships, an end to tokenism, and accountability and transparency from decision makers to foster trust, reciprocal relationships, and fair and effective planning outcomes.

To create this new model of community partnership, participants

argued that there is a need for early community engagement in resilience planning to support community-led planning, rather than top-down planning where the agenda is predetermined and communities are brought in too late to shape the process. CBO leaders advocate for legitimization of previously developed community plans and agency plans developed in partnership with communities. Strategies toward true partnerships included resourcing capacity building for communities and agencies, and explicit recognition of the structures of power and privilege that perpetuate inequalities such that these can be actively addressed.

First, government decision makers should legitimize the plans previously constructed by communities, either independently or through partnerships with agencies, which have often involved extensive community engagement, rather than crafting public resilience plans that disregard community-led and –informed planning. If planners analyze and build upon previous plans, they can more effectively incorporate community-based knowledge and help avoid consultation fatigue within communities which have already invested time and effort to identify their priorities.

Second, agencies stewarding community engagement and consultation must recognize that community planning is an inherently relational process. An absence of accountability and trust is detrimental to successful engagement. Equitable partnerships require sharing power with communities and investing in trusted local leaders, who form part of local community infrastructure and possess continuity of community connections, to facilitate community engagement processes. Further, mechanisms must be developed for transparent and accountable pathways for planning and implementation resources to flow to communities.

Third, the needs of communities should be considered during the design phase for community planning processes. Rather than tokenistic community consultation, the focus should be on active and equal dialogue, iterative planning processes and authentic community involvement. For example, engagement must commence in tandem with any process and take place in community spaces and events. Equitable contribution from all groups within a neighborhood is important, and small steps toward this include: offer virtual alternatives to physical attendance at meetings; plan the timing and location of engagement to suit communities rather than officials; and provide resources to address barriers such as lack of transport or childcare availability.

Fourth, a guidance tool should be developed to assist communities and agencies to evaluate and iteratively improve planning processes, ensuring that power is shared equitably. Communities should be involved in developing the tool or tools, which may take the form of a rubric or checklist which enables self-assessment of planning processes to evaluate the level of community leadership and identify areas for improvement. Examples of successful community co-production processes should be shared, allowing others to learn from planning processes which have been run well.

Recommendations for researchers in community resilience align with the recommendations offered for decision makers. Lasting and mutually supportive reciprocal relationships must be built between researchers and community participants, through more intentional dialogue, a deeper commitment to accountability and a greater focus on power-sharing with participants, to facilitate an equitable exchange and co-production of knowledge which benefits both parties. Researchers should engage with community partners during research design, consider community needs, and provide resources to support participation. For future research, it might be advantageous to interview a broader range of CBOs or to conduct complementary interviews with decision makers cited by participants as positive examples in community resilience planning, gathering alternative perspectives on planning processes.

This proposed co-produced approach to resilience planning, made tangible through the set of strong recommendations, has the potential to favorably influence resilience planning initiatives, building

relationships across sectors and promoting the development of trust between communities and decision makers. Follow-up engagement and a broader set of interviewees in future research could further sharpen recommendations, yet the broad vision is clear. An approach of ‘true partnership’ offers opportunities to strengthen community cohesion, to build capacity both for communities and for agencies, and to support equitable outcomes for frontline communities and coastal resilience planning.

Annex: Project Background.

Creation of the Resilient Coastal Communities Project.

The Resilient Coastal Communities Project (RCCP) was established as a part of the Columbia Climate School, within the Center for Sustainable Urban Development, with intentions to progress an environmental and climate justice agenda within the interconnected web of policymakers, academics, and communities. The project has been established in direct partnership with the New York City Environmental Justice Alliance (NYC-EJA) and seeks to challenge current practices in resiliency planning, rethink historically top-down processes, and collaborate with communities through participatory processes involving non-extractive engagement, in order to create a better model for community empowerment. Through a participatory research project, *Building Partnerships for Inclusive Climate Resiliency*, a series of community interviews were conducted with community-based organizations (CBOs) within New York and New Jersey to gather community perspectives on resilience planning. The Resilient Coastal Communities Project is guided by an 18-member advisory board which brings together a diverse range of interdisciplinary expertise (Columbia Climate School, 2022).

The Resilient Coastal Communities Project comprises a research partnership between Columbia University’s Center for Sustainable Urban Development and the NYC-EJA. The project operates within a model where knowledge is co-produced through an equitable and collaborative partnership between academics and non-academics, working directly with representatives from the community sector.<sup>8</sup>

The Resilient Coastal Communities Project was established in recognition of the fact that to date, policymakers have largely failed to establish a comprehensive set of goals, processes and selection criteria for identifying and implementing protective resiliency projects that involve meaningful community consultation and empowerment, especially within frontline communities, particularly where these include BIPOC and economically disadvantaged communities. The project aims to address these challenges through a combination of iterative engaged scientific research, community empowerment and innovation; academic and clinical support for enhanced community participation in public planning; communications initiatives to build public awareness and support effective action; classroom instruction; and workshops, conferences and other convenings. The primary funding for the project is sourced from private foundations.

The research project described in the present paper, *Building Partnerships for Inclusive Climate Resiliency*, comprises a series of interviews with representatives from community-based organizations working in the environmental justice space, specifically those located within coastal communities affected by flooding risk. This project was funded by a Diversity, Equity, Inclusion and Accessibility (DEIA) grant as part of a DEIA Pilot Funding Initiative. Researchers have sought to address issues of equity from the beginning, working side by side with representatives from NYC-EJA throughout the process of scoping the research project, developing the research questions, and identifying the CBOs to approach

<sup>8</sup> This approach reflects the commitment which Columbia University has made to the pursuit of a “Fourth Purpose,” which seeks to advance human welfare by merging the intellectual capacities of university representatives with groups and organizations beyond the academy to achieve meaningful change and confront the great global challenges of our time (Columbia University, 2022).

for interviews.

### CRedit authorship contribution statement

**Aya Morris:** Data curation, Formal analysis, Supervision, Writing – original draft, Writing – review & editing. **Bernadette Baird-Zars:** Conceptualization, Formal analysis, Investigation, Writing – original draft, Writing – review & editing. **Victoria Sanders:** Conceptualization, Formal analysis, Investigation, Methodology, Writing – original draft, Writing – review & editing. **Paul Gallay:** Conceptualization, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Writing – original draft, Writing – review & editing. **Jacqueline M. Klopp:** Conceptualization, Formal analysis, Investigation, Methodology, Supervision, Writing – original draft, Writing – review & editing. **Annel Hernandez:** Conceptualization, Formal analysis, Investigation, Writing – review & editing. **Lexi Scanlon:** Conceptualization, Data curation, Investigation, Project administration, Writing – original draft. **Hannah Su-An Lin:** Project administration, Writing – review & editing.

### Data availability

The data that has been used is confidential.

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### References

- Anguelovski, I., 2016. From toxic sites to parks as (Green) LULUs? New challenges of Inequity, privilege, gentrification, and exclusion for urban environmental justice. *J. Plan. Lit.* 31 (1), 23–36. <https://doi.org/10.1177/0885412215610491>.
- Arroyo, J.C., Sandoval, G.F., Bernstein, J., 2023. Sixty years of racial equity planning. *J. Am. Plann. Assoc.* 89 (4), 438–458. <https://doi.org/10.1080/01944363.2022.2132986>.
- Bautista, E., Osorio, J.C., Dwyer, N., 2015. Building climate justice and reducing industrial waterfront vulnerability. *Soc. Res.* 82 (3), 821–838. <http://www.jstor.org/stable/44282137>.
- Bennett, E.M., Solan, M., Biggs, R., McPhearson, T., Norström, A.V., Olsson, P., Pereira, L., Peterson, G.D., Raudsepp-Hearne, C., Biermann, F., Carpenter, S.R., Ellis, E.C., Hichert, T., Galaz, V., Lahsen, M., Milkoreit, M., López, B.M., Nicholas, K.A., Preiser, R., Xu, J., 2016. Bright spots: seeds of a good anthropocene. *Front. Ecol. Environ.* 14 (8), 441–448.
- Bernal, C.L.R., Durosaiye, I.O., Hadjri, K., Corredor, S.K.Z., Duran, E.S., Prieto, A.C., 2022. Neglected landscapes and green infrastructure: the case of the Limas Creek in Bogotá, Colombia. *Geoforum* 136, 194–210. <https://doi.org/10.1016/j.geoforum.2022.09.010>.
- Berry, L.H., Koski, J., Verkuil, C., Strambo, C., Piggot, G., 2019. Making space: how public participation shapes environmental decision-making. *Stockholm Environment Institute*.
- Bock, J., Srivastava, P., Jessel, S., Klopp, J.M., Parks, R., 2021. Compounding risks caused by heat exposure and COVID-19 in New York City: a review of policies tools, and pilot survey results. *J. Extr. Events* 08 (02), 2150015. <https://doi.org/10.1142/S2345737621500159>.
- Bullard, R.D., 1993. *Race and environmental justice in the United States*. *Yale J. Int. Law* 18 (319), 319–335.
- Bullard, R.D., 1994. *Overcoming racism in environmental decision making*. *Environ.* 36 (4), 10–44.
- Chambers, J.M., Wyborn, C., Ryan, M.E., Reid, R.S., Riechers, M., Serban, A., Bennett, N.J., Cvitanić, C., Fernández-Giménez, M.E., Galvin, K.A., Goldstein, B.E., Klenk, N.L., Tengö, M., Brennan, R., Cockburn, J.J., Hill, R., Munera, C., Nel, J.L., Österblom, H., Bednarek, A.T., Pickering, T., 2021. Six modes of co-production for sustainability. *Nat. Sustain.* 4, 983–996. <https://doi.org/10.1038/s41893-021-00755-x>.
- Checker, M. (2020). *The Sustainability Myth: Environmental Gentrification and the Politics of Justice*. New York, NYU Press Scholarship Online. DOI: 10.18574/nyu/9781479835089.003.0002.
- Chiesi, L., Forte, G., 2022. Design for climate change in the neoliberal present: gentrification, ecocide, and the loss of urbanity in New York City. *Soc. Sci.* 11 (10), 451. <https://doi.org/10.3390/socsci11100451>.
- Chu, E., Schenk, T., Patterson, J., 2018. The dilemmas of citizen inclusion in urban planning and governance to enable a 1.5 °C Climate Change Scenario. *Urban Plan.* 3 (2), 128–140. <https://doi.org/10.17645/up.v3i2.1292>.
- City of New York. (2022). *State of Climate Knowledge 2022: Workshop Summary Report*. New York City.
- Climate Leadership and Community Protection Act. S. 6599 A. 8429 (Jun. 18, 2019). <http://legislation.nysenate.gov/pdf/bills/2019/S6599>.
- Columbia Climate School. (2022). *Resilient Coastal Communities Project*. Center for Sustainable Urban Development. <http://csud.climate.columbia.edu/research-projects/resilient-coastal-communities-project>.
- Columbia University. (2022). *The Fourth Purpose*. Columbia World Projects. <https://worldprojects.columbia.edu/fourth-purpose>.
- Corburn, J., 2003. Bringing local knowledge into environmental decision making: improving urban planning for communities at risk. *J. Plan. Educ. Res.* 22, 420–433. <https://doi.org/10.1177/0739456X03022004008>.
- Cumulative Impacts Act, S.8830 (Apr. 22, 2022). <https://legislation.nysenate.gov/pdf/bills/2021/s8830>.
- de Backer, L., Bibbins, S.A., Urquilla, M., James, T., Clarke, J., Mazur, L., Boyer, H., Burrows, R., 2015. *Pathways to Resilience: Transforming Cities in a Changing Climate*. Oakland, CA, Movement Strategy Center.
- de Bruijn, K.M., Jafino, B.A., Merz, B., Doorn, N., Priest, S.J., Dahm, R.J., Zevenerbergen, C., Aerts, J.C.J.H., Comas, T., 2022. Flood risk management through a resilience lens. *Commun. Earth Environ.* 3, 285. <https://doi.org/10.1038/s43247-022-00613-4>.
- Department of City Planning “Appendix B: Significant Maritime and Industrial Areas”, *Vision 2020: New York City Comprehensive Waterfront Plan 2011* [https://www.nyc.gov/assets/planning/download/pdf/plans-studies/vision-2020-cwp/vision2020/appendix\\_b.pdf](https://www.nyc.gov/assets/planning/download/pdf/plans-studies/vision-2020-cwp/vision2020/appendix_b.pdf).
- Disaster Relief Appropriations Act. Pub. L. No. 113-2, 127 Stat. 4 (Jan. 29, 2013). <https://www.congress.gov/113/plaws/publ2/PLAW-113publ2.pdf>.
- DuPuis, E.M., Greenberg, M., 2019. The right to the resilient city: Progressive politics and the green growth machine in New York City. *J. Environ. Stud. Sci.* 9, 352–363. <https://doi.org/10.1007/s13412-019-0538-5>.
- El Puente, 2019. *Green Light District. Leaders for Peace and Justice*, El Puente <https://elpuente.us/green-light-district>.

- Ezell, J.M., Chase, E.C., 2022. Forming a critical race theory of environmental disaster: understanding social meanings and health threat perception in the Flint water crisis. *J. Environ. Manage.* 320, 115886 <https://doi.org/10.1016/j.jenvman.2022.115886>.
- Fainstein, S.S., 2018. Resilience and justice: Planning for New York City. *Urban Geogr.* 39 (8), 1268–1275. <https://doi.org/10.1080/02723638.2018.1448571>.
- Foster, S., Leichenko, R., Nguyen, K.H., Blake, R., Kunreuther, H., Madajewicz, M., Petkova, E.P., Zimmerman, R., Corbin-Mark, C., Yeampierre, E., Tovar, A., Herrera, C. & Ravenborg, D. (2019). New York City Panel on Climate Change 2019 Report Chapter 6: Community-Based Assessments of Adaptation and Equity. *Annals of the New York Academy of Sciences*, 1439, 126–173. <https://doi.org/10.1111/nyas.14009>.
- Giannetti, G. (2021, August 03). *Four Keys for a Successful FERC Office of Public Participation*. NRDC.
- Gidley, J.M., Fien, J., Smith, J., Thomsen, D.C., Smith, T.F., 2009. Participatory futures methods: towards adaptability and resilience in climate-vulnerable communities. *Environ. Policy Gov.* 19, 427–440. <https://doi.org/10.1002/eet.524>.
- Good Old Lower East Side (GOLES). (2022). *Healthy Communities*. GOLES. <https://www.goles.org/healthy-communities>.
- Good Old Lower East Side (GOLES), Hester Street Collaborative (HSC) & Urban Justice Center Community Development Project (CDP). (2015). *Getting LES ready: Learning from Hurricane Sandy to create a community-based disaster plan for the future*. GOLES. <https://www.goles.org/publications>.
- Graham, L., Debucquoy, W., Anguelovski, I., 2016. The influence of urban development dynamics on community resilience practice in New York City after Superstorm Sandy: Experiences from the Lower East Side and the Rockaways. *Glob. Environ. Chang.* 40, 112–124. <https://doi.org/10.1016/j.gloenvcha.2016.07.001>.
- Gray, S., 2023. *In the shadow of the seawall: Coastal injustice and the dilemma of placekeeping*, 1st ed. University of California Press.
- Grzywacz, G., 2022, September. Reflections on Centering Racial Equity at the NYC Panel on Climate Change State of the Planet. Columbia Climate School 14. <https://news.climat.columbia.edu/2022/09/14/reflections-on-centering-racial-equity-at-the-nyc-panel-on-climate-change/>.
- Haasnoot, M., Biesbroek, R., Lawrence, J., Muccione, V., Lempert, R., Glavovic, B., 2020. Defining the solution space to accelerate climate change adaptation. *Reg. Environ. Chang.* 20, 37. <https://doi.org/10.1007/s10113-020-01623-8>.
- Henfrey, T., Feola, G., Penha-Lopes, G., Sekulova, F., Esteves, A.M., 2023. Rethinking the sustainable development goals: Learning with and from community-led initiatives. *Sustain. Dev.* 31 (1), 211–222. <https://doi.org/10.1002/sd.2384>.
- Holland, B., 2017. Procedural justice in local climate adaptation: Political capabilities and transformational change. *Environ. Polit.* 26 (3), 391–412. <https://doi.org/10.1080/09644016.2017.1287625>.
- H.R.7575 - 116th Congress (2019-2020): Water Resources Development Act of 2020. (2020, July 30). <https://www.congress.gov/bills/116th-congress/house-bill/7575>.
- Inflation Reduction Act. Pub. L. No. 117-169, 136 STAT. 1818 (Aug. 16, 2022). <https://www.congress.gov/117/plaws/publ169/PLAW-117-publ169.pdf>.
- Jaganathan, K., Arnott, J.C., Wyborn, C., Klenk, N., Mach, K.J., Moss, R.H., Sjöström, K. D., 2020. Great expectations? Reconciling the aspiration, outcome, and possibility of co-production. *Curr. Opin. Environ. Sustain.* 42, 22–29. <https://doi.org/10.1016/j.cosust.2019.11.010>.
- Kim, H., Marcouiller, D.W., Woosnam, K.M., 2018. Rescaling social dynamics in climate change: the implications of cumulative exposure, climate justice, and community resilience. *Geoforum* 96, 129–140. <https://doi.org/10.1016/j.geoforum.2018.08.006>.
- Klenk, N., Fiume, A., Meehan, K., & Gibbs, C. (2017). Local knowledge in climate adaptation research: Moving knowledge frameworks from extraction to co-production. *Wiley Interdisciplinary Reviews-Climate Change*, 8(5), e475.
- Loh, P., Estrella-Luna, N., Shor, K., 2023. Pandemic response and mutual aid as climate resilience: learning from community responses in the Boston area. *J. Clim. Resil. Climate Just.* 1, 8–19. [https://doi.org/10.1162/crcj\\_a.00006](https://doi.org/10.1162/crcj_a.00006).
- Maldonado, S. & Honan, K. (2022, August 16). *City Comptroller Denies Every Single Financial Claim for Hurricane Ida Flooding*. The City. <https://www.thecity.nyc/housing/2022/8/16/23308728/nyc-denies-every-financial-claim-for-hurricane-ida-flooding>.
- McCauley, D., Heffron, R., 2018. Just transition: integrating climate, energy and environmental justice. *Energy Policy* 119, 1–7. <https://doi.org/10.1016/j.enpol.2018.04.014>.
- Meerow, S., Stults, M., 2016. Comparing conceptualizations of urban climate resilience in theory and practice. *Sustainability* 8, 701. <https://doi.org/10.3390/su8070701>.
- Meerow, S. (2020). The politics of multifunctional green infrastructure planning in New York City. *Cities*, 100, 102621.
- Moitra, M. & Velasquez, L. (2020). *Our Air! ¡Nuestro Aire! A Holistic Model For Community Wellness, Sustainability, Cultural Organizing, & Self-Determined Development. Phase 1: Project Report*. El Puente: Leaders for Peace and Justice. <https://www.docdroid.net/hQ49jRp/our-air-fin-report-5-point-platform-pdf>.
- Molino, G.D., Kenney, M.A., Sutton-Grier, A.E., 2020. Stakeholder-defined scientific needs for coastal resilience decisions in the Northeast U.S. *Mar. Policy* 118, 103987. <https://doi.org/10.1016/j.marpol.2020.103987>.
- Morello-Frosch, R., Brown, P., Lyson, M., Cohen, A., Krupa, K., 2011. Community voice, vision, and resilience in post-hurricane Katrina recovery. *Environ. Justice* 4 (1), 71–80. <https://doi.org/10.1089/env.2010.0029>.
- Moser, S.C., 2016. Can science on transformation transform science? Lessons from co-design. *Curr. Opin. Environ. Sustain.* 20, 106–115. <https://doi.org/10.1016/j.cosust.2016.10.007>.
- Moser, S., Meerow, S., Arnott, J., Jack-Scott, E., 2019. The turbulent world of resilience: Interpretations and themes for transdisciplinary dialogue. *Clim. Change* 153, 21–40. <https://doi.org/10.1007/s10584-018-2358-0>.
- National Academy of Sciences, 2022. November 30). *Towards a More Comprehensive and Equitable Evaluation of Benefits, Measuring What Matters* <https://www.nationalacademies.org/event/11-30-2022/measuring-what-matters-towards-a-more-comprehensive-and-equitable-evaluation-of-benefits>.
- National Science and Technology Council. (2023, December 14). *Advancing the Frontiers of Benefit-Cost Analysis: Federal Priorities and Directions for Future Research*. Annual Report, Subcommittee on Frontiers of Benefit-Cost Analysis. <https://www.whitehouse.gov/wp-content/uploads/2023/12/FINAL-SFBCA-Annual-Report-2023.pdf>.
- Nel, H., 2018. Community leadership: A comparison between asset-based community-led development (ABCD) and the traditional needs-based approach. *Dev. South. Afr.* 35 (6), 839–851. <https://doi.org/10.1080/0376835X.2018.1502075>.
- New Jersey Environmental Justice Law. Pub. L. No. 2020, c.92, §§ 2,4 (Sept. 18, 2020). <https://www.nj.gov/dep/ej/docs/ej-law.pdf>.
- New York State, 2022. *Climate Action Council Draft Scoping Plan*. New York State. <https://climate.ny.gov/Our-Climate-Act/Draft-Scoping-Plan>.
- Norström, A.V., Cvitanovic, C., Löf, M.F., West, S., Wyborn, C., Balvanera, P., Bednarek, A.T., Bennett, E.M., Biggs, R., de Bremond, A., Campbell, B.M., Canadell, J.G., Carpenter, S.R., Folke, C., Fulton, E.A., Gaffney, O., Gelcich, S., Jouffray, J., Leach, M., Le Tissier, M., Martín-López, B., Louder, E., Österblom, H., 2020. Principles for knowledge co-production in sustainability research. *Nat. Sustainability* 3, 182–190. <https://doi.org/10.1038/s41893-019-0448-2>.
- Poblete, G. (2022, October 21). *Penn Station Neighbors Set Out to Create Their Own Area Plan to Counter Hochul's*. The City. <https://www.thecity.nyc/2022/10/21/penn-station-community-197a-plan-against-hochul/>.
- Ranganathan, M., & Bratman, E. (2021). From Urban Resilience to Abolitionist Climate Justice in Washington, DC. *Antipode*, 53(1), 115–137. DOI: 10.1111/anti.12555.
- Raworth, K. (2017). *Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist*. London, United Kingdom: Random House Business Books.
- Regional Planning Association NYC Climate Resilience Plan Mapper 2023 <https://rpa.org/maps/resilience.html>.
- Riverkeeper & Guardians of Flushing Bay Flushing Waterways 2018 Vision Plan. Riverkeeper. 2018 <https://www.riverkeeper.org/campaigns/restore-nyc-waterways/flushing-waterways-vision-plan/>.
- Riverkeeper & Newtown Creek Alliance. (2018). *Newtown Creek 2018 Vision Plan*. Riverkeeper. <https://view.publitas.com/riverkeeper/newtown-creek-vision-plan-2018/>.
- Rockaway Initiative for Sustainability and Equity (RISE), WXY architecture + urban design, eDesign Dynamics, & Ana Fisyak Consulting. (2021). *Greater Rockaway Community & Shoreline Enhancement Plan*. RISE.
- Rodriguez, M., 2022. Opportunity for improvement: What participants of the Climate Knowledge Exchange seek from the city to help foster resiliency. Columbia Climate School. <https://csud.climate.columbia.edu/sites/default/files/content/documents/Opportunity%20For%20Improvement%20What%20Participants%20in%20NYC%20Climate%20Knowledge%20Exchange%20Seek%20from%20the%20City%20to%20Help%20Foster%20Resiliency.pdf>.
- Rosen, J., Painter, G., 2019. From citizen control to co-production: Moving beyond a linear conception of citizen participation. *J. Am. Plann. Assoc.* 85 (3), 335–347. <https://doi.org/10.1080/01944363.2019.1618727>.
- Routledge, P., Cumbers, A., Derickson, K.D., 2018. States of just transition: realizing climate justice through and against the state. *Geoforum* 88, 78–86. <https://doi.org/10.1016/j.geoforum.2017.11.015>.
- Rudge, K., 2021. Participatory climate adaptation planning in New York City: analyzing the role of community-based organizations. *Urban Clim.* 40, 101018 <https://doi.org/10.1016/j.uclim.2021.101018>.
- Satorras, M., Ruiz-Mallén, I., Monterde, A., March, H., 2020. Co-production of urban climate planning: Insights from the Barcelona Climate Plan. *Cities* 106, 102887.
- Schramm, P.J., Ahmed, M., Siegel, H., Donatuto, J., Campbell, L., Raab, K., Svendsen, E., 2020. Climate change and health: local solutions to local challenges. *Curr. Environ. Health Rep.* 7, 363–370. <https://doi.org/10.1007/s40572-020-00294-1>.
- Shannon, J., March 2022. Assistant Secretary of the Army for Civil Works issues Environmental Justice Guidance to the Army, 22. Corps of Engineers U.S. Army. <https://www.army.mil/article/254935/assistant-secretary-of-the-army-for-civil-works-issues-environmental-justice-guidance-to-the-army-corps-of-engineers>.
- Shaw, K., Maythorne, L., 2013. Managing for local resilience: Towards a strategic approach. *Public Policy Admin.* 28 (1), 43–65.
- Staten Island Urban Center (SIUC), 2022. *MERC: A Maritime Education, Recreation and Cultural Corridor for Staten Island's North Shore*. Staten Island Urban Center.
- Steiner, A., McMillan, C., Hill O'Connor, C., 2023. Investigating the contribution of community empowerment policies to successful co-production - evidence from Scotland. *Public Manage. Rev.* 25 (8), 1587–1609. <https://doi.org/10.1080/14719037.2022.2033053>.
- The Point Community Development Corporation (CDC). (2022). *South Bronx Community Resiliency Agenda*. The Point CDC. <https://southbronxcommunityresiliencyagenda.org/>.
- The White House. (2022). *Justice 40: A Whole-of-Government Initiative*. Environmental Justice. <https://www.whitehouse.gov/environmentaljustice/justice40/>.
- Tuccillo, J.V., Spielman, S.E., 2022. A method for measuring coupled individual and social vulnerability to environmental hazards. *Ann. Am. Assoc. Geogr.* 112 (6), 1702–1725. <https://doi.org/10.1080/24694452.2021.1989283>.
- UPROSE, 2019. *Collective for Community, Culture, & Environment, Protect our Working Waterfront Alliance*. [https://static1.squarespace.com/static/581b72c32e69cfaa445932df/t/5d7fa701be8e5528f6bee11/1568646954044/GRID\\_UPROSE+EDITS.pdf](https://static1.squarespace.com/static/581b72c32e69cfaa445932df/t/5d7fa701be8e5528f6bee11/1568646954044/GRID_UPROSE+EDITS.pdf).

- USACE, 2019. New York – New Jersey Harbor and Tributaries Coastal Storm Risk Management Feasibility Study Interim Report. US Army Corp of Engineers, New York District.
- USACE, 2022. New York-New Jersey Harbor and Tributaries Coastal Storm Risk Management Feasibility Study: Draft Integrated Feasibility Report and Tier 1 Environmental Impact Statement. US Army Corp of Engineers, New York District <https://www.nan.usace.army.mil/Missions/Civil-Works/Projects-in-New-York/New-York-New-Jersey-Harbor-Tributaries-Focus-Area-Feasibility-Study/>.
- Valente, S., Veloso-Gomes, F., 2020. Coastal climate adaptation in port-cities: adaptation deficits, barriers, and challenges ahead. *J. Environ. Plan. Manage.* 63 (3), 389–414. <https://doi.org/10.1080/09640568.2018.1557609>.
- Virapongse, A., Brooks, S., Metcalf, E.C., Zedalis, M., Gosz, J., Kliskey, A., Alessa, L., 2016. A social-ecological systems approach for environmental management. *J. Environ. Manage.* 178, 83–91. <https://doi.org/10.1016/j.jenvman.2016.02.028>.
- Watson, V., 2014. Co-production and collaboration in planning – The difference. *Plan. Theory Pract.* 15 (1), 62–76. <https://doi.org/10.1080/14649357.2013.866266>.
- Whyte, K.P., 2013. On the role of traditional ecological knowledge as a collaborative concept: a philosophical study. *Ecol. Process.* 2, 7. <https://doi.org/10.1186/2192-1709-2-7>.
- Whyte, K.P. (2021). Time as kinship. In J. Cohen & S. Foote (Eds.), *The Cambridge Companion to Environmental Humanities*, (pp. 39-55). Cambridge University Press.
- Ziervogel, G., Enqvist, J., Metelerkamp, L., van Breda, J., 2022. Supporting transformative climate adaptation: community-level capacity building and knowledge co-creation in South Africa. *Clim. Pol.* 22 (5), 607–622. <https://doi.org/10.1080/14693062.2020.1863180>.