ADAPTIVE CAPACITY BEST PRACTICES

Developed by Enterprise Community Partners, Inc. as part of the Resilient NJ program for the New Jersey Department of Environmental Protection. This work was funded by U.S. Department of Housing and Urban Development through an award from the National Disaster Resilience Competition.

RESILIENT NJ

DEPARTMENT OF ENVIRONMENTAL PROTECTION NEW JERSEY

Adaptive Capacity and Climate Change

Climate change has many undeniable impacts on the longevity and health of the environment and infrastructure. Thus, the impact to human health is also significant and varied and exacerbates the health inequities of communities at most risk. Components of human health can be physical, structural, social, or systemic. Social determinants of health such as safety and wellbeing, community and culture; land, home and property; livelihoods and economic security; core systems, services, and basic needs; environmental quality; and democratic systems of governance often have the most impact on human health and disparities in climate impact and resilience. Health inequities are prominent in urban centers across the U.S. and often, because of historical inequality, are related to race and income. Although race is a social construct, disinvestments, discrimination, and social devaluing committed over time, based on race, have created population-level health disparities in communities. This highlights the importance of understanding how climate change affects human health in order to begin to overcome present community-based health inequities and disparities and support community resilience efforts.

There are many different paths that communities can take to build resilience; this basic formula from NAACP's "Our Communities, Our Power: Advancing Resistance and Resilience in Climate Change Adaptation" Action Toolkit is useful to understanding the various components of resilience.

As described in the Action Toolkit: "At the core of resilience are the following elements:

Climate Change Mitigation + Adaption + Deep Democracy + Equity = Resilience

Climate change mitigation refers to reducing the greenhouse gas emissions that are the main cause of climate change. Burning fossil fuels like coal or oil for electricity and transportation are the main sources of greenhouse gas emissions. Additionally, mitigation can refer to other strategies that tackle the causes and minimize the possible impacts of climate change. *Climate change adaptation* refers to the shifts our communities must make to survive in a changing climate. Adaptation is about planning and altering our systems, including built environments, to account for current and anticipated effects. Mitigation and adaption are closely related and should work together. *Deep democracy* is the practice of democracy that recognizes the importance of all voices in a group or society, especially those on the margins. It is about fostering a strong sense of community, inclusion, power, and participation. *Equity* involves redressing social harms, and dismantling structures of oppression and inequality. Effective climate resilience strategies incorporate all of these elements. In this way, resilience is not just about adapting or bouncing back. Rather, resilience is a broad, multidimensional, 'bounce-forward' response to the causes of climate change and the potential transformational solutions."[1]

Adaptive capacity is the ability of communities, institutions, or people to adjust to potential hazards, to take advantage of opportunities, or to respond to consequences. Having strong adaptive capacity contributes to resilience—the ability to prepare and plan for, absorb, recover from, and more successfully adapt to adverse events. In the context of extreme events, people with low adaptive

[1] *Our Communities, Our Power: Advancing Resistance and Resilience in Climate Change Adaptation*. NAACP. Page 18.

capacity have difficulty responding, evacuating, or relocating when necessary, and recovering from event-related health impacts.

For individuals, health outcomes are strongly influenced by the social determinants of health that affect a person's adaptive capacity. Poverty is a key risk factor, and people experiencing poverty are disproportionately affected by extreme events. Low-income individuals may have fewer financial resources and if that is coupled with strained social capital (e.g. human networks and relationships) to help prepare for, respond to, and recover from an extreme event, adaptive capacity can be further depleted.[1] In many urban, low-income neighborhoods, adaptive capacity is reduced where physical and social constructs, such as community infrastructure, neighborhood cohesion, and social patterns, promote social isolation. Those with higher income often possess higher availability of resources to increase their adaptive capacity. Other attributes of individuals that contribute to lower adaptive capacity include their age (very young or very old) and associated dependency on caregivers, disabilities such as mobility or cognitive impairments, having specific access and functional needs, medical or chemical dependence, limited English proficiency, social or cultural isolation, homelessness, and institutionalization (prisons, psychiatric facilities, nursing homes).

At a larger community or societal level, adaptive capacity is heavily influenced by governance, management, and institutions. Governments and non-governmental organizations provide essential extreme-event preparedness, coordination, emergency response, and recovery functions that increase adaptive capacity at the local, state, tribal, and federal levels—for example, in providing early warning systems where possible, evacuation assistance, and disaster relief. Risk sharing, management, and recovery schemes such as insurance can also play a significant role in building resilience in the context of extreme events and climate change. For instance, lack of health insurance has been associated with greater risk of hospital admission after exposure to certain weather events. Public health actions or interventions that maintain or strengthen the adaptive capacity of communities, institutions, or people could help mediate certain health impacts due to extreme events. On the other hand, climate change—particularly its effect on extreme events—has the potential to create unanticipated public health stressors that could overwhelm the U.S. public health system's adaptive capacity and could require new approaches.[2]

Selecting Adaptive Capacity Strategies

Information on the nature and evolution of the climate hazards faced by a society—both historical climate data and data from scenarios of future climate change—is key to enhancing adaptive capacity. On the other hand, information on socio-economic systems, including both past and possible future evolution, is important as well. Within these evolving socio-economic and developmental contexts, viable adaptation strategies can be designed. Adaptation and capacity development strategies must also be acceptable and realistic, so information on cultural and political contexts is also important. The implementation of adaptation strategies requires resources, including financial capital, social capital (e.g., strong institutions, transparent decision-making systems, formal and informal networks that

[2] *Climate Change 2014 Synthesis Report*. Intergovernmental Panel on Climate Change. https://www.ipcc.ch/site/assets/uploads/2018/05/SYR_AR5_FINAL_full_wcover.pdf

promote collective action), human resources (e.g., labor, skills, knowledge and expertise) and natural resources (e.g., land, water, raw materials, biodiversity). The types of resources required, and their relative importance will depend on the context within which adaptation is pursued, on the nature of the hazards faced, and on the nature of the adaptation strategy.

Adaptation strategies will not be successful unless there is a willingness to adapt among those affected, as well as a degree of consensus regarding what types of actions are appropriate. Adaptive capacity, therefore, depends on the ability of a society to act collectively, and to resolve conflicts between its members—factors that are heavily influenced by governance. Adaptive capacity can be undermined by a refusal to accept the risks associated with climate change, or by a refusal of key actors to accept responsibility for adaptation. Such refusals may be ideological in nature, or the consequence of vested interests denying the existence of risks associated with climate change. Large-scale structural economic factors and prevailing ideologies, therefore, play a vital role in determining which adaptations are feasible.[3]

Adaptive Capacity and Participatory Decision-making

Adaptive capacity and participatory decision-making in the identification and prioritization of adaptation options is absolutely vital, since to be successful, adaptation measures must be acceptable to those who are to implement them. Where there is no consensus as to the feasibility and acceptability of these options, the capacity to adapt will be very limited, and what adaptation does occur will be constrained by conflict. The origin of an adaptive capacity strategy is an important factor in the commitment of decision makers and stakeholders. When the impetus for adaptation comes from, and is generally acceptable to, both the government and stakeholder communities, progress is likely. Alternatively, if the adaptation agenda is imposed by external groups—without local representation—community buy-in will be difficult to achieve. The role of external groups should be to support locally-driven initiatives for adaptation strategies. An opportune time to develop such initiatives is after crises (e.g., cyclones, droughts, or floods). At these times, political and social awareness of environmental change issues is high, and resistance to adaptation strategies is low.

The exclusion of marginalized members of society from the decision-making process is likely to lead to further undermining of their socio-economic status that may, in turn, lead to social conflict and political instability. This is particularly likely if adaptation measures involve displacement. Further marginalization may also lead to environmental degradation, as the extremely poor are forced to use resources in an unsustainable manner in order to survive. Strategies with such consequences are as likely to be maladaptive as they are to help adaptation. Adaptive capacity is strengthened by the existence of networks and mechanisms that encourage participation and prevent marginalization. In the relationship

[3] Brooks, Nick and Adger, w. Neil. "Assessing and Enhancing Adaptive Capacity." United Nations Framework Convention on Climate Change.
https://www4.unfccc.int/sites/NAPC/Country%20Documents/General/apf%20technical%20paper07.pdf

between society and the state, adaptive capacity strategy development should take the form of engagement between civil society, in the form of stakeholder groups, and local and national government.

Stakeholder representatives should come from all sections of society likely to be affected by climate change, or by the implementation of adaptive measures. Stakeholder groups with little or no historical power to influence decision-making should be represented, and the fact that adaptation may create "winners and losers" must be recognized. A wide variety of stakeholders should participate in adaptation policy formulation, and in the case where those who share concerns and interests regarding climate change have no framework for collective representation, they should be assisted in building such networks. People are far more likely to support adaptation strategies if they feel their views have been taken into account. Decision makers might have to weigh the interests of those who will be physically displaced against those who stand to profit economically from the implementation of the adaptation measure. In such circumstances, adaptive capacity will be enhanced by the existence of formal mechanisms for addressing such conflicts of interest, and through the pursuit of conflict management strategies. Those who will be most adversely affected by an adaptation measure should have a greater input, in addition to offers of compensation.[4]

Adaptive Capacity Strategies

Below are several examples of adaptive capacity strategies. The highlighted strategies focus on those that community organizations and community members have led. However, these should not take the place of the vital systems change that is needed—from governments and other stakeholders—to generate true resilience. As put forward by the NAACP, equally important are climate mitigation, deep democracy, and equity strategies. Also as noted above, the local context and the process by which a community selects adaptive capacity strategies is at least as important as the strategies themselves. As such, these examples simply provide some ideas for communities to consider as part of a larger participatory process, rather than a list of "plug and play" projects.

Resilience Hubs

The Urban Sustainability Directors Network (USDN) defines resilience hubs as "community serving facilities augmented to:

1) support residents and
2) coordinate resource distribution and services before, during, or after a natural hazard event.

They leverage established, trusted, and community-managed facilities that are used year-round as neighborhood centers for community-building activities…. Moreover, Resilience Hubs provide an opportunity to build local community power and leadership. They are focal points for neighborhood revitalization that provide the resources residents need to enhance their own individual capacity while also supporting and strengthening their neighborhood and neighbors. Instead of being led by local government, they are intended to be supported by local government and other partners but led and

[4] "Assessing Technology Needs to Address Climate Change." http://www.undp.org/cc/technology.htm

managed by community members, community-based organizations, and/or faith-based groups."[5] There are numerous examples of and resources[6] for resilience hubs to support communities interested in developing and funding them.

Neighborhood/Community-led Resilience Planning

In addition to participating in government-led planning efforts, community members and organizations can lead place-based resilience planning efforts. Community-led resilience planning not only can lead to the generation of locally-led adaptation strategies, but also affords an opportunity to build community capacity and social cohesion. Two notable examples of this approach are the Empowered Communities Program in San Francisco, California and The People's Plan in Marin City, California.

Empowered Communities Program—San Francisco, California [7]

The Empowered Communities Program (ECP) "leverages a community development approach to advance a neighborhood's disaster resilience. By fusing together methods such as human centered design, collective impact and experiential leadership development, we've created a program that empowers neighborhoods to craft and implement culturally competent strategies that strengthen their capacity to negotiate times of stress and protect the health and well-being of all residents, especially the vulnerable."

As described on the ECP website, the conception of the program dates back over a decade to 2007, when former San Francisco City Administrator (and later Mayor) Edwin M. Lee "led a delegation to New Orleans' devastated Broadmoor neighborhood as part of a Clinton Global Initiative (CGI) to support the neighborhood's recovery following Hurricane Katrina. The devastation was horrible, but perhaps even more heartbreaking was how much of the suffering and loss was preventable. Analysis by CGI partner Harvard Kennedy School of Government's Acting in Time Initiative clearly showed that a total breakdown in the working relationship between residents and their government encumbered the government's ability to move vulnerable residents out of harm's way. Prior to the disaster, this breakdown had also prevented the government from making smart, obvious investments that would have mitigated the storm's impact in the first place. Armed with this analysis, then-Administrator Lee ultimately concluded that while an earthquake is a very different type of stressor than a hurricane, the outcome of a seismic event for San Francisco's neighborhoods could be identical to what the communities of New Orleans suffered. Upon his return, then-Administrator Lee entered into a formal partnership with the Acting in Time Initiative to capture every possible lesson from Katrina for a

[5] "Resilience Hubs: Shifting Power to Communities and Increasing Community Capacity." https://www.usdn.org/resilience-hubs.html

[6] For instance, see: *Communities Together: A Guide for Resilient Community Center Design in Island Communities.* *https://www.enterprisecommunity.org/sites/default/files/media-library/solutions-and-innovation/recovery-rebuilding/Resilient-Community-Hubs-Guide_ENGLISH.pdf* Baja, Kristin. *Guide to Developing Resilience Hubs.* USDN. 2019. http://resilience-hub.org/wp-content/uploads/2019/10/USDN_ResilienceHubsGuidance-1.pdf and *Equitable Adaptation Legal & Policy Toolkit*. "Supporting the Development of Resilience Hubs." Georgetown Climate Center. https://www.georgetownclimate.org/adaptation/toolkits/equitable-adaptation-toolkit/supporting-the-development-of-resilience-hubs-a.html

[7] https://www.empowersf.org/

resilience development strategy in San Francisco. A key Harvard recommendation was to invest heavily in the leadership capacities of local residents to:

- Drive rapid, substantive action
- Focus on inclusiveness
- Embrace self-reliance
- Pursue and interface successfully with outside sources of help (government, foundations, universities, corporations, nonprofits)
- Evolve and adapt as challenges arise by developing new skills and capacities"

As a result of the recommendations, the City of San Francisco launched the Empowered Communities Program, supported by the Neighborhood Empowerment Network (NEN)—a cross-sector, collective impact "cohort of government, non-profit, academic, faith-based, private sector, philanthropic and civic agencies and institutions" who have come together to "to create and deploy tools and resources that empower communities to achieve their self-identified resilience goals." It is managed by several staff and a Steering Committee comprised of residents from the various Empowered Community Program neighborhoods.

In addition to providing neighborhood communities with technical support and resources to draft their own resilience plans, NEN offers several complementary programs to support ECP neighborhoods, including:

- The HUB:[8] A cohort of cross-sector agencies that reside in close proximity to each other that works together on advancing their individual resilience, and have the capacity to come together and support the needs of their surrounding community during times of stress. There is additional programming focusing specifically on vulnerable populations.[9]
- Neighborfest:[10] The Neighborfest Host Toolkit provides residents with a step-by-step process that helps them assemble a high-performing team of volunteers to craft and implement event plans that will bring their neighbors together, build social cohesion, and increase their individual and collective resilience.
- Block Champion:[11] This initiative builds on the momentum of Neighborfest by converting the host into a year-round advocate for preparedness amongst their neighbors as well as a powerful resource to the their community and city during times of stress, by managing/triaging the condition of their block and providing valuable data to the agencies committed to their success.
- NEN Leadership Academies: Leadership academies[12] that empower today's, and tomorrow's, emerging leaders to steward San Francisco to a more resilient future, including one focused on youth leaders.[13]
- Strong Congregation Program:[14] The program's mission is to empower faith-based organizations to achieve their internal disaster resilience mission as well as strengthen their ability to meet the health and well-being needs of the community around them during times of stress.

[8] https://www.empowersf.org/hub/
[9] https://www.empowersf.org/vpr/
[10] https://www.empowersf.org/neighborfest/
[11] https://www.empowersf.org/blockchampion/
[12] https://www.empowersf.org/leadership/
[13] https://www.empowersf.org/ryla/
[14] https://www.empowersf.org/strong-congregation/

- NEN Training Center:[15] The NEN is rich in member agencies that provide a wide variety of training for residents and organizations that elevate their capacity to succeed during times of stress.

The People's Plan—Marin City, California[16]

A winner for the Resilient by Design Bay Area Challenge,[17] *The People's Plan*[18] was the result of a social design process to build community capacity in leading the challenges of coastal adaptation and resiliency planning. The team implemented this process in Marin City with Shore Up Marin, an environmental justice and resiliency planning organization. As described on the project webpage: "Out of the process grew a capacity building program, resulting in an inspiring People's Plan to authentically reflect the aspirations and intentions of the resident community. An intergenerational cohort expanded existing knowledge for assessing and addressing risks, developing near and long-term strategies with a prioritized set of projects to be partially implemented as early as this summer."[19] This community-driven process was developed in recognition that the "norms of planning and development through community engagement are ineffective in the context of coastal adaptation and resilience planning. Chronically marginalized communities find themselves on the front lines of sea level rise with inadequate infrastructure, inequitable resources, and the imminent threat of displacement along with enduring stressors like food insecurity. Even well-intended municipal planners, designers, developers, and regulators can be seen as outsiders. Communities retreat into not trusting the intentions of those that engage them on ideas generated by an outside professionalized design culture with technical jargon. Proposals driven by market rate return capital financing tend to lead to exploitation. The normal process of assess, ideate, engage, iterate, then present overlooks the community's capacity to generate or express their own self-determined solutions."[20]

Increase Financial Stability

A major indicator of a community's or individual's adaptive capacity is whether they have the financial resources—e.g. income, wealth—to adjust to potential hazards, take advantage of opportunities, or respond to consequences. At an individual level, this may mean having the financial resources to protect one's house from flooding with stormwater management features or foundation elevation, rebuild housing damaged from a disaster, or pay for their cost of living when a job or business is interrupted. At the community level, this may mean having a high number of accessible living wage jobs in industries that have not been permanently shuttered or contracted by disasters, successful minority- and women-owned businesses that have sufficient disaster-related (e.g. flood) insurance, and low unemployment and poverty rates. As such, some of the most important adaptive capacity strategies are those designed to increase the financial stability of those who are most exposed and sensitive to the impacts of disasters. Below is a non-exhaustive sampling of some of these strategies, including workforce

[15] https://www.empowersf.org/nen-training-center/
[16] http://www.rebuildbydesign.org/our-work/bay-area-challenge/the-peoples-plan
[17] http://www.resilientbayarea.org/new-folder
[18] https://drive.google.com/file/d/1f1Wz00wXmyiHFw1h8JgHHjGCKpVgtJ_z/view
[19] http://www.resilientbayarea.org/peoples-plan
[20] http://www.resilientbayarea.org/peoples-plan

development programs, targeted hiring and workforce protections, community benefits agreements, and business continuity plans.

Workforce Development for Green Infrastructure and Water Management—New Orleans, Louisiana

The City of New Orleans Gentilly Resilience District[21] invests in innovative and creative solutions so that people, culture, and infrastructure can thrive. One such solution is a workforce development training program that aims to:

- Train the local workforce in green infrastructure and water management.
- Focus on job readiness and developing the next generation of builders, problem-solvers, and green infrastructure specialists.
- Support programs to hire and train a skilled workforce to build and support the maintenance of National Disaster Resilience Competition-funded projects.[22]

The program not only helps to build the financial stability of residents in the Gentilly Resilience District, but also focuses on jobs that will directly and positively impact the broader community's adaptive capacity.

Local or targeted hiring and workforce protections—Houston, Texas

Local and targeted hiring policies require or incentivize businesses (usually those that receive public funding) to hire from specific geographic areas (local) or from specific, in-need populations within the community (targeted). In the aftermath of Hurricane Harvey, the City of Houston instituted comprehensive worker protection and targeted hiring measures as part of the Harvey Multifamily Program to ensure recovery from the hurricane builds resilience and equity. The "Build it Better Houston Agreement" is a collaboration with "Gulf Coast AFL-CIO, Workers' Defense Project, Texas Organizing Project, and HOME Coalition to implement new worker protection measures in all projects funded by the Harvey Multifamily Program. Protections for workers include:

- Healthcare: Each apprentice and Section 3 employee must be guaranteed healthcare equivalent to the City's Pay or Play system. This standard guarantees that workers will be given sufficient healthcare coverage and assistance paying for costs.
- Safety Training: Every worker on the site of a project must receive 10 hours or more of OSHA training. In addition, a manager with at least 30 hours of OSHA training will be on-site at all times.
- Workers' compensation: All contractors will provide workers' compensation coverage to all workers and will report on these guarantees to the City.
- Wages: Each employee will receive at a minimum either $15/hour or a wage that meets the requirements of the Davis-Bacon and Related Act (DBRA).
- Section 3 and Apprenticeship Opportunities: Contractors must employ a certain number of Section 3 employees and apprentices and ensure that these individuals are completing a major portion of the project, as defined within the Program Guidelines."[23]

[21] https://www.nola.gov/resilience-sustainability/gentilly-resilience-district/
[22] https://www.nola.gov/resilience-sustainability/gentilly-resilience-district/workforce-development/
[23] https://recovery.houstontx.gov/multifamily/workforce-protections/

Community Benefit Agreement Union Square Neighborhood Council—Somerville, Massachusetts[24]

Community benefits agreements (CBAs) are legally binding contracts between developers and community groups that set forth an agreement for the community to support the proposed development project in exchange for benefits the developer is committed to bringing to the community. A CBA in Somerville, Massachusetts provides an example that both increases the financial stability for local residents by providing workforce development opportunities and affordable housing units, and also includes a commitment to sustainability practices such as stormwater management, green space, and solar-ready roofs.[25]

Business Continuity Plans

Business continuity plans help business assess their assets and risks and make a plan to mitigate the risks with adaptive strategies. Business continuity plans are especially important for disadvantaged business enterprises that may face increased sensitivity and exposure to climate threats and have fewer financial resources to ride out the negative impacts of a disaster, like interruption to supply chains, diminished customer access, or temporary business closure. There are numerous curated resources to support business continuity planning on the Adaptation Clearinghouse,[26] including:

- "Adapting to Climate Change Using your Business Continuity Management System"[27]
- "Weathering the Storm: Building Business Resilience to Climate Change"[28]
- "The Definitive Guide to Disaster Planning"[29]

Disaster Collectivism aka Mutual Aid

In contrast to "disaster capitalism"[30] disaster collectivism, as described by Movement Generation, is "the way communities radically come together, both forming new and building on existing networks of mutual aid, to take care of each other in the immediate aftermath of disaster. In these times, people are meeting their own needs their own way and prioritizing care for each other, especially those hardest hit by the disaster, often in the absence of adequate government response. Disaster collectivism sets the stage for long-term collectivity and deep democratic self-governance, and moves communities forward in their own Just Recovery processes."[31] Two well-known examples include Undocufund from Santa Rosa, California and Occupy Sandy from New York City.

---

[24] The CBA term sheet can be find here http://unionsquareneighborhoodcouncil.org/images/docs/190825-US2%20-%20Letter%20to%20USNC%20Negotiating%20Committee%20re%20CBA%20Term%20Sheet.pdf

[25] https://www.adaptationclearinghouse.org/resources/union-square-neighborhood-council-somerville-massachusetts.html

[26] https://www.adaptationclearinghouse.org/

[27] https://www.bsigroup.com/localfiles/en-gb/iso-22301/resources/bsi-sustainability-report-adapting-to-climate-change-using-your-business-continuity-management-system-uk-en.pdf

[28] https://www.c2es.org/site/assets/uploads/2013/07/weathering-the-storm-full-report.pdf

[29] https://www.agilityrecovery.com/resources/definitive-guide-disaster-planning

[30] See Klein, Naomi. *The Shock Doctrine: The Rise of Disaster Capitalism*. Toronto: Alfred A. Knopf Canada, 2007

[31] Choy, Ellen. "Transition Is Inevitable, Justice Is Not: A Critical Framework For Just Recovery." Movement Generation. https://movementgeneration.org/transition-is-inevitable-justice-is-not-a-critical-framework-for-just-recovery/

Undocufund—Santa Rosa, California[32]

As described on the Undocufund website, "The UndocuFund for Disaster Relief in Sonoma County, was founded in October 2017, in response to the Tubbs wildfire. It was launched by a coalition of immigrant service providers and advocates to provide direct assistance to undocumented victims of the Northern California fires." [33] The community has reactivated the mutual aid fund several times over the last few years to respond to more recent fires and to the COVID-19 pandemic. In the first three years the fund has been in operation, they raised over $10 million and provided aid to over 6,000 families to help with fire- and COVID-related losses.

Occupy Sandy—New York City, New York

Occupy Sandy was a grassroots disaster relief network that emerged to provide mutual aid to communities affected by Superstorm Sandy. "Filling in a vacuum left by the official response, Occupy Sandy volunteers worked in partnership with local community organizations and activist networks. Their grassroots efforts focused on empowering poor and working class communities and were based on mutual aid rather than charity. With nearly 60,000 volunteers at its height, its own Amazon relief registry, legal team, medical team, prescription drug deliveries, and meal deliveries everyday, it was able to make a significant impact in the days and weeks following the disaster."[34]

Community Stewardship of Green Space

From Georgetown Climate Center's *Equitable Adaptation Legal and Policy Toolkit:* "In the process of planning and preparing for climate change, many cities are capitalizing on the abilities of nature-based features in urban landscapes to mitigate flooding, reduce urban heat, and otherwise contribute to a comprehensive climate change adaptation strategy. Investments in "natural resilience," referring to the ability of ecosystems and the natural environment to absorb and recover quickly from stresses or disturbances, can also bring many other environmental, social, economic, and health-related co-benefits to surrounding communities. Strategies often used to promote natural resilience in an urban setting may include urban forestry (tree planting), rain gardens, bioswales, green roofs, community gardens and urban agriculture, habitat initiatives, nature-based flood mitigation, complete/green streets initiatives, and other green infrastructure investments." Below are several examples from Puerto Rico and New York of community members co-creating and stewarding these spaces, increasing their adaptive capacity.

Organización Boricuá de Agricultura Ecológica de Puerto Rico—Puerto Rico[35]

As reported by Ellen Choy for the article, "Transition Is Inevitable, Justice Is Not: A Critical Framework For Just Recovery"[36] for Movement Generation: "Food sovereignty in Puerto Rico is under constant

---

[32] https://undocufund.org/

[33] https://undocufund.org/about/

[34] Raymond, Robert. "Disaster collectivism: How communities rise together to respond to crises." Shareable. October 1, 2018. https://www.shareable.net/disaster-collectivism-how-communities-rise-together-to-respond-to-crises/

[35] https://www.facebook.com/organizacionboricua/

[36] Choy, Ellen. "Transition Is Inevitable, Justice Is Not: A Critical Framework For Just Recovery." Movement Generation. https://movementgeneration.org/transition-is-inevitable-justice-is-not-a-critical-framework-for-just-recovery/

threat; before the storm about 85% of what Puerto Rico eats was imported from outside the islands, and after Hurricane María, it has risen to above 90%.... Rebuilding from the storm means challenging these realities by building up other infrastructure to meet peoples' food needs, and infrastructure that affirms their rights. Through their network of farmers building Puerto Rican food sovereignty across the archipelago, Organización Boricuá[37] is leading recovery work by asserting their right to the resources needed to rebuild, with a long-term vision. A key focus of their work has been on land as a priority resource in the road to food sovereignty…. These efforts are meeting immediate recovery needs, while challenging and transforming extractive power dynamics within a long-term vision for self-determination."

Building Bridges—New York City, New York

As part of the Big U—a more than half-billion dollar project to protect Lower Manhattan from floodwater, storms, and other impacts of a changing climate—a bridging berm was proposed in East River Park to both protect the area from storm surges and rising sea levels, and offer waterfront access for relaxation, socializing, and enjoying river vistas by providing pleasant, accessible routes over the highway into the park. Additionally, salt-tolerant trees and plants will provide a resilient urban habitat.[38] Historically, New York City has relied on a conservancy model to steward parks and other green spaces in the city. While this model has been effective in maintaining the quality of these spaces, it often led to exclusion and inequity in access and benefit. To address these challenges, Rebuild by Design funded researchers to explore and recommend more equitable community-based stewardship models for the redesigned East River Park. The culmination of these efforts is captured in the report, "Building Bridges: A Community-Based Stewardship Study for an Equitable East River Park."[39] The research and recommendations serve as a helpful jumping off point for communities to consider equitable models for stewarding green spaces that also contribute to the adaptive capacity of their neighborhoods.

[37] https://www.facebook.com/organizacionboricua/

[38] http://www.rebuildbydesign.org/our-work/all-proposals/winning-projects/big-u

[39] The Trust for Public Land and James Lima Planning + Development. "Building Bridges: A Community-Based Stewardship Study for an Equitable East River Park." Rebuild by Design. http://www.rebuildbydesign.org/data/files/1096.pdf