

**REBUILD
BY
DESIGN**



Policy by Design

Promoting Resilience in Policy and Practice



October, 2014

Acknowledgments

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Resilience requires that we do things differently than we have in the past to prepare for the future. To become more resilient, the Sandy-affected region and the nation at large should incorporate the Rebuild by Design competition's lessons about collaboration, governance, and restoration into the future of planning, design, and policy. More than design innovation, we will need structural and social innovations for long-term resiliency. This document identifies barriers that Rebuild by Design's ten design teams faced during the competition, and outlines possible avenues for addressing them as recommended by the team members, government representatives, regulators, community leaders, academics and others.

Background: The Competition

Rebuild by Design was a competition initiated by the Hurricane Sandy Rebuilding Task Force and administered by the U.S. Department of Housing and Urban Development (HUD) in collaboration with New York University's Institute of Public Knowledge, Municipal Arts Society, Regional Plan Association and Van Alen Institute. Six entities funded it with the Rockefeller Foundation taking the lead¹. Rebuild by Design was dedicated to creating innovative community- and design-based solutions to protect and prepare a region and its cities heavily affected by Hurricane Sandy – the second most expensive natural disaster in United States history – and vulnerable to increasingly intense weather events and future uncertainties. Former HUD Secretary Shaun Donovan, who also served as Chair of President Barack Obama's Hurricane Sandy Rebuilding Task Force, launched Rebuild by Design in June 2013.

¹ Six funders of Rebuild by Design: The Rockefeller Foundation, The JPB Foundation, Deutsche Bank Americas Foundation, Surdna Foundation, Hearst Foundation, The New Jersey Recovery Fund

Rebuild by Design began as a multi-stage research and design competition. Ten diverse interdisciplinary design teams collaborated with local governments, civic groups, and the public to come up with a cross-cutting comprehensive research of the region's interdependencies, vulnerabilities and resilience opportunities that led to groundbreaking proposals addressing the physical and social vulnerabilities that Sandy uncovered. The endeavor was designed to generate a better understanding of how to respond to a region's nuanced and interconnected needs and to create the opportunity through Federal disaster recovery funding to act upon that need.

During nine months of creative and deliberate public engagement, the teams developed innovative strategies for resilience. Rebuild by Design's partner organizations² co-organized unique research experiences to paint a nuanced picture of the needs that existed throughout the region. As teams convened over 350 small group meetings and more than 50 community workshops and outreach events, they were increasingly able to connect their understanding of resilience needs with concerns for ecology, governance, funding and social issues.

In June 2014, then HUD Secretary Donovan announced six winning proposals and allocated \$930 million in disaster recovery grant funding to assist in implementation of the first phases of these proposals as well as for one additional finalist proposal.

Challenges + Approaches

As the design teams developed their proposals, each encountered existing policy, regulatory, administrative, and planning challenges to achieving resilience.

In May 2014, Rebuild by Design asked each team to identify the obstacles they faced and the unexpected opportunities they uncovered, and to explain how they developed their approaches in response. Three topic papers emerged from these interviews, setting the stage for a Policy Roundtable in June 2014 facilitated by Regional Plan Association (RPA). The papers identified the noted barriers to resilience and posed questions to enable communities and municipalities to move forward. The first paper focused on how to engage communities and civic groups in long-term design, planning, and political processes. The second focused on the challenges that climate change poses for existing governance models, and what might be required to better balance human, ecological and economic needs in coastal areas. The third addressed how to expand the use of nature-based solutions to protect against flooding.

² Rebuild by Design partner organizations: NYU Institute for Public Knowledge, Municipal Art Society, Regional Plan Association, and Van Alen Institute

At the roundtable, design team members, regulators, community leaders, academics, and others³ worked together to discuss these challenges in breakout groups corresponding to each topic paper. Together, they further identified barriers to implementing resilient infrastructure projects and generated guidance on efforts that all partners of Rebuild by Design could work towards in line with, and parallel to, project implementation.

This report includes a brief summary of each topic paper as well as a synthesis of the recommendations that grew out of each of the three breakout groups. The recommendations that emerged from the breakout groups are:

Collaboration by Design

1. **Connect Rebuild by Design Communities:** A mechanism should be developed to facilitate communication between communities in which funded projects will be implemented and those that were not awarded funded projects.
2. **Tailor Approaches to Capacity-Building:** Different communities need different kinds of support.
3. **Move Beyond Engagement to Partnership:** Community organizations should become more active participants in planning processes, not merely facilitators for outreach.
4. **Incorporate Equity Into Resiliency:** Resilience-related projects should incorporate equity and environmental issues to avoid repeating historic patterns and conditions that increase a community's vulnerability.
5. **Replicate What Works:** Rebuild by Design's effective model for collaboration should be incorporated into future resiliency initiatives. It can be broken into five categories: process, design, talent, funding, and inclusive leadership.

Governance by Design

6. **Support education, outreach and training:** All partners of Rebuild by Design and the wider network of agencies should build institutional and local awareness of the need to address and incorporate resiliency through an aggressive public information campaign.
7. **Formalize regional coordination:** The Hurricane Sandy Rebuilding Task Force that was created to coordinate efforts after Sandy should be formalized to maintain and further resiliency efforts in the region.
8. **Remove barriers to funding sources:** All partners of

Rebuild by Design should continue to identify and help leverage other non-disaster related sources of money that can contribute towards resilience.

Restoration by Design

9. **Build a baseline understanding of ecological conditions:**
 - Expand baseline knowledge and collect comprehensive data to advance nature-based solutions.
 - Regulatory agencies should facilitate data collection and data sharing among users.
 - The development of resilience projects should be accompanied by monitoring and stewardship plans/proposals.
10. **Develop a Multi-Dimensional Benefit-Cost Analysis (BCA):** Develop a standardized approach or set of principles for BCA that all regulatory agencies use and incorporates social, ecological, and other factors.
11. **Strengthen Public Participation:**
 - Agencies should engage with and incorporate communities in their resiliency planning processes to build and foster resilience through education.
 - As part of implementation, each Rebuild by Design project should be required to develop communications strategies.
 - Agencies and advocates should have a clear, unified message about vulnerability, resilience, and risk reduction.

These findings are a starting point for overcoming barriers to implementing resilience infrastructure projects. They provide the basis for developing a reform agenda for policy that will in turn set the stage for successful future interventions in and beyond the Sandy-affected region.

Allocations for Implementation

On June 2, 2014 Secretary Donovan announced the six winning design proposals. The Secretary was joined by Governor Andrew Cuomo, Senator Charles Schumer, and Mayor Bill de Blasio at an event in New York City and by Governor Chris Christie and Mayor Mauro Raguseo at a separate event in New Jersey. HUD has allocated \$930 million toward the implementation of the six winning proposals and one finalist proposal.

3 To see a complete list of participants please refer to Appendix B

Allocations

The winning proposals are transformational and replicable. They will serve as a blueprint for how communities can maximize resilience as they rebuild and recover from major disasters.

- HUD awarded \$335 million to New York City for the first phase of the BIG U, a berm that will extend the flood protection capacity of East River Park and provide new recreational opportunities for residents of the Lower East Side.
- Nassau County's winning Slow Streams project includes stormwater management/storage, building a sluice gate and a corridor of marshes, creeks, and other green infrastructure to reduce flooding as well as improving water quality in the Long Island Sound. New York State was awarded \$125 million for implementation.
- HUD awarded \$60 million to New York State to develop a series of breakwaters off the coast of Tottenville, Staten Island. The natural breakwater will reduce wave height from storm surge while replenishing the ecosystem by providing useful habitat for oyster beds, juvenile fish, and other species.
- New Jersey was awarded \$230 million towards a flood mitigation system for Hoboken and parts of Jersey City and Weehawken. The plan includes flood protection that secures the breach points which allowed catastrophic flooding of the city after Sandy, green infrastructure improvements that can slow and absorb excess water as well as policy changes and regulatory reform aimed at greening the city and initiating projects and creating incentives for local resilience efforts.
- The Hunts Point Lifelines proposal was awarded \$20 million to implement a planning process and develop a pilot project for a resilient working waterfront that protects New York City's Hunts Point food market in the South Bronx.
- New Jersey was awarded \$150 million for a series of berm structures that reduces flooding, restores wetlands and water quality, and provides opportunities for managed growth in the Meadowlands communities of Little Ferry, Moonachie, Carlstadt and Teterboro.

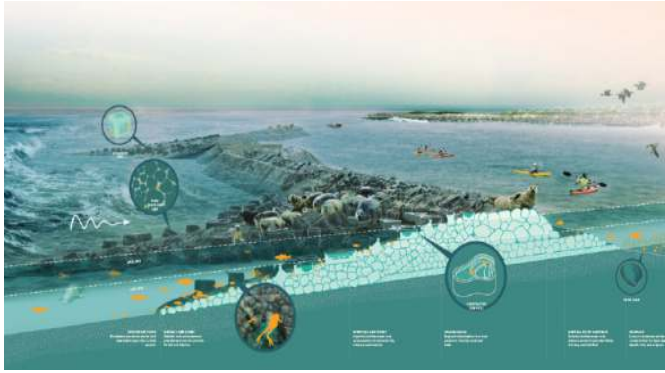
- \$10 million was awarded to Connecticut to help implement a plan for a Resilient Bridgeport, with a focus on reducing flood risk to the city's most vulnerable public housing stock. Funding for this finalist proposal will be leveraged by millions in additional funds already dedicated by the city toward risk reduction in the area.
- Three other finalists created innovative proposals to improve resilience. One proposal developed built strategies and technical assistance for commercial corridors to become more resilient, which can help communities sustain and rebound from disasters. Focusing on the Jersey Shore, the Resilience + the Shore proposal designed new experiences for New Jersey's inland bay, the headlands and the barrier beach. The Blue Dunes proposal focuses on designing a regional solution to coastal storms through constructed islands in the New York Bight that reduce the surge impact on the whole region's coast and increase the ecological quality while pursuing possible future developments.



BIG and Starr Whitehouse: BIG U



Interboro Partners: Slow Streams



SCAPE/LANDSCAPE ARCHITECTURE: Living Breakwaters



PennDesign/OLIN: Hunts Point Lifelines



OMA: Resist, Delay, Store, Discharge



Sasaki/Rutgers/Arup: Resilience + the Beach



MIT CAU + ZUS + URBANISTEN: New Meadowlands



WB unabridged with Yale ARCADIS: Resilient Bridgeport



HR&A Advisors + Cooper, Robertson & Partners: Resilient Commercial Corridors



WXY/WEST8: Blue Dunes – The Future of Coastal Protection

Collaboration by Design: Strengthening Government and Civic Infrastructure

Governance by Design: Planning, Managing and Governing for Resilience

Restoration by Design: Incorporating Nature-Based Solutions into Climate Adaptation



Collaboration by Design: Strengthening Government and Civic Infrastructure

Robert Lane, Regional Plan Association

Introduction

Rebuild by Design sought to reframe the way we think about engagement. In particular, one of Rebuild by Design's objectives was to move beyond the narrow binary proposition of "top down versus bottom up" planning in order to create a process that finds the optimal intersection between research and analysis conducted by professionals, and the goal-setting and commitment to implementation that needs to come from the community stakeholders in each of the project locations. In the Rebuild by Design model, the definition of the problem was itself part of a cooperative effort between the interdisciplinary teams of professionals and a diverse group of place-based stakeholders. To this end, Rebuild by Design introduced the concept of the "project partner": local stakeholders that would comprise a coalition, together with the design team, the public and a HUD CBDG-DR grantee. The role of the coalition was not just to provide place-based intelligence, but also to help design the ultimate project and implement outreach efforts to the larger communities in each location to ensure everyone's voices were incorporated into the final design. The coalition also informed the community on climate change, future uncertainties and resilience approaches, thus building capacity beyond the usual suspects and across all sectors. The assessment of the project proposals in April included the degree to which the teams had successfully engaged with project partners to form a coalition, whether they had together generated the kind of local support and resilience intelligence that would be needed to implement proposed projects, as well as demonstrate that they used the feedback garnered in the process throughout the competition in their final designs.

The Rebuild by Design competition demonstrated a commitment to the principle that communities must be the drivers for resilience and succeeded in creating opportunities for engaging communities in the design and planning processes. However, the competition process found that there are many challenges in building and sustaining these collaborations. These included planning fatigue, the desire to return to normal, variations in capacity and effectiveness in different stakeholders, lack of standing in the decision-making process and future uncertainties through the process of procurement and implementation.

The Rebuild by Design Experience

Program Coordination

A multiplicity of uncoordinated initiatives, even if they are complementary, can create confusion.

Rebuild by Design was launched at a time when the region was in the thick of the disaster recovery phase after Hurricane Sandy. As the teams visited the affected communities, several things were apparent: planning fatigue had set in and that more inter-agency coordination was needed. Many of the communities were already in a state of planning fatigue, or even government fatigue because many organizations and agencies had already started their recovery programs. The myriad recovery planning activities were a source of confusion, as it was necessary to explain how Rebuild by Design was differentiated from other programs, and how it would relate to the overall recovery effort. The lack of coordination between recovery programs and disaster relief programs clearly created a certain amount of planning fatigue if not skepticism about whether anything would happen in a timely manner.

Building Back vs. Building Back Better

In the immediate aftermath of a disaster, people often want to build back to pre-disaster conditions quickly, but this can exacerbate vulnerability to the next disaster.

The issue of timeliness was a source of tension. Still reeling from the effects of the immediate crisis, there was an inevitable tension between “build it back quickly” and “build it back better.” For this reason, Rebuild by Design was on an extremely aggressive schedule: identifying design teams, researching the Sandy-affected region, conceptualizing designs, and delivering design proposals and implementation plans in all of nine months. In terms of civic capacity-building, this aggressive schedule was both an asset and liability. On the one hand, the sense of urgency made Rebuild by Design relevant, by demonstrating that it was possible to build it back both fast and better. On the other hand, in those places where new coalitions of partners needed to come together, six months was a very compressed time in which to build understanding and support for projects that will take perhaps years to implement. From the start, there was a tension in communities between short-term needs, such as rebuilding their homes, and long-term visions, such as the ones pursued by the Rebuild by Design teams. This tension between the desire to rebuild to pre-storm conditions and the desire to think about long-term solutions made it difficult to secure buy-in during early stages of Rebuild by Design.

Understanding the Civic Landscape

Few civic groups have the capacity to plan for climate change and to support the implementation of long-term design, planning and construction processes.

As introduced above, a centerpiece of the outreach and engagement effort was the creation of local coalitions. It was critical that every design proposal have a coalition comprised of civic partners and partners in local or state government. But because the civic context was different in each location, the composition of the coalitions as well as the kind of interaction between those groups and the teams varied from project to project. In some cases, a well-established community based organization was able step into the project partner role. And in some cases entirely new coalitions needed to be formed among organizations that might otherwise not have joined forces. Each of these configurations has its own set of advantages and disadvantages, but in the end, Rebuild by Design had to confront several very familiar dimensions of community-based planning – that it is much easier to do outreach and engagement when the civic infrastructure is already in place and that inter-municipal cooperation is difficult to enable. For example, well-established organizations have deep roots in the communities where they are based and these relationships can be used to drive attendance and participation at meetings, as well as build understanding and support for the initiative. Newer organizations and new coalitions may not have the same capacity to organize local residents or support a design process as well-established organizations.

Governments and government agencies are also an essential part of the civic landscape. Here again, there are huge differences in resources, capacity, and effectiveness. Where projects are limited to a single municipality, a dynamic and effective mayor is a huge asset, as was the case for Hoboken and Bridgeport. In contrast, the Meadowlands is an expansive and complex geography that takes in significant portions of 14 municipalities, each guided by the principles of “home rule.” Nevertheless, having an agency that encompasses a larger area can aid such a complex geography. On the other hand, places that encompass one municipality might have other issues such as limited capacity.

These challenges extend beyond the ability to participate in the project development phase. Issues of capacity and resources extend to the long-term maintenance and stewardship of investments. For example if, as in the Meadowlands or the Lower East Side, a berm is built that is also a kind of

open space amenity such as a park, a funding mechanism must be in place to pay for both the maintenance of the berm structure and for the park and its programming. Embracing a Diversity of Engagement Formats Communities must be at the forefront of resiliency. New ways to communicate climate science and climate risks are necessary to engage people in these efforts. In addition, a diverse engagement and outreach strategy is necessary to enable community driven decision-making and a robust and supported net of resiliency solutions.

As mentioned above, the role of the project coalitions was not only to provide place-based intelligence, but also to help design and implement outreach efforts to the larger stakeholders in each location. In keeping with the diversity of configurations among the coalitions themselves and the wide variations in the civic landscape, the outreach and engagement efforts varied widely from proposal to proposal.

Rebuild by Design is, by its very name, about the role that design can play in articulating innovative solutions to complex problems, in this case, by using design to build back differently. In fact, design did play an essential role not only in finding innovative project-based strategies, but also in collaborating with and educating the project partners about issues related to resiliency. Most teams started their outreach efforts by designing compelling graphics and tools to help communities understand climate risks.

Design teams also used a variety of strategies to engage with civic groups and communities. These included targeted sessions in which community members generated, and responded to, design solutions as well as broader events that generated awareness and excitement around Rebuild by Design. Each event was designed to obtain different perspectives. By engaging more deeply with the process of Rebuild by Design, the teams not only created better design proposals but also had a lasting impact in communities around the region.

Building Regional Awareness

Communities can tend to focus on their most immediate and local concerns, but this makes it difficult to address regional scale challenges or to recognize the regional implications of local actions.

Rebuild by Design is meant to be more than the sum of individual projects. Recognizing that resilience needs to be understood at every scale, Rebuild by Design seeks to create a regional consciousness about these issues. This was manifest in several ways. During the Research Stage (Stage 2), Rebuild by Design planned tours across the Sandy-affected



A charrette at the "All Scales Workshop" in Bridgeport



A model of the "BIG U" berm in the Lower East Side

region so that they could gain this regional perspective. A series of public programs on issues relating to resilience and rebuilding were held across the region for design teams to hear from residents in Sandy-affected communities regarding their experiences and the struggles that still exist. Working Groups comprised of design team members, the Research Advisory Group and partner organizations were organized around cross cutting themes such as governance, infrastructure and ecology so that the teams could share insights among the many disciplines represented. In the Design Phase (Stage 3), a variety of public programs raised awareness of the Rebuild by Design agenda. These were complementary and parallel to individual place-based investigations by each of the teams.

Finally, at the conclusion of Stage 3, the teams were also asked to explain their proposed projects in the context of their regional-scale research and mapping that was completed in Stage 2. This effort yielded many important insights and helped build awareness across the region. But it was also challenged in several ways: Rebuild by Design's ambition was to help people think about resilience as more than protecting against the next big storm – to think about the social resilience of neighborhood networks, the financial resilience of local economies, or resilience against other weather-related events such as heat waves or riverine flooding.

Providing Resources for Engagement

Many civic organizations do not have the capacity to participate effectively in long-term resiliency efforts.

Ongoing engagement in the design and planning processes requires financial resources. While established organizations may have a reliable source of support, some community-based organizations are volunteer-based and do not have funding either to stage events or pay consultants for technical advice and support. Recognizing that community-based participation requires resources, Rebuild by Design used money set-aside from its funders to make small grants to community-based organizations to help with outreach and engagement. Funding for outreach and engagement was used in different ways, depending on the programs, coalitions, and communities' needs. In the implementation phase, it may be necessary to identify funding opportunities for the project partners to continue to dedicate time to these projects.

Questions for Discussion

While the Rebuild by Design process made it clear that resiliency hinges upon social and cultural innovation just as much as design innovation, it raises many questions about how to sustain social innovation and engagement, including:

What are the opportunities for increasing government and civic capacity to address climate change and to achieve resiliency?

- How do we reassure communities that “building back better” provides a higher level of safety and value than building back to pre-storm conditions?
- How can we integrate resiliency into other types of planning that can occur before a disaster strikes?
- How can we build the capacity of civic groups in places where local leadership is necessary to drive climate-resiliency?
- How can coalition planning and design inform government processes?
- What is the connection between community-led planning and government processes? Where they diverge, how can we bridge the gap to strengthen social resiliency through broader collaboration?

What is the potential for a larger campaign that cuts across individual initiatives to raise regional awareness of issues related to resiliency?

- How can federal, state and local rebuilding initiatives be better coordinated? What is the right scale for doing

so – across communities, cities, states – and how to organize it? What policies or regulatory structures are needed to get it right?

- How can new partnerships among established civic and governmental groups be facilitated while encouraging them to more fully embrace resiliency as part of their missions?
- How can better awareness of the regional dimensions of resiliency for civic groups and government agencies be created? What is the relationship between public awareness and policy on this issue?
- How can community coalitions grow beyond their local perspectives to encompass a regional approach?



OMA Team Produced Material to communicate flood risk



An emergency preparedness workshop at the Mercy Learning Center in Bridgeport

Lessons Learned/What We Heard

The Rebuild by Design Policy Roundtable included a breakout session targeted at addressing these questions. It featured moderator Mary Rowe from the Municipal Art Society with Damaris Reyes, Executive Director of GOLES (Good Old Lower East Side), Asbury Park's City Council Member, Amy Quinn, and Kathleen Dorgan, Principal and owner of Dorgan Architecture & Planning, offering insights on the Rebuild by Design process and laying the foundation for a discussion about moving forward during the implementation phase.

Connect Rebuild By Design Communities

A mechanism should be developed to facilitate communication between communities in which funded projects will be implemented and those that were not awarded funded projects.

Rebuild by Design made a clear commitment to engaging with communities and building civic capacity. Throughout the process, each team invested time and resources into creating robust coalitions and strong partnerships. In the aftermath of this process, some communities were selected to host winning proposals, while others were inevitably left with little or no new funding but still comprised an energetic core of organizers within their own communities.

The competition and design process should connect both projects and communities that are not awarded funding with other forms of support to continue making progress on critical resilience issues. This would address the issues many of these communities are currently facing: how to continue the positive momentum that Rebuild by Design generated by securing resources and taking action. Without continued support, communities may in the future feel even greater distrust towards government interventions.

Tailored Approaches to Capacity Building
Different communities need different kinds of support.

For communities with established community organizations and experienced community leaders, such as the Lower East Side (GOLES) and Hunts Point (THE POINT CDC), increasing civic capacity lies in re-thinking funding mechanisms for community-oriented projects. Traditionally, philanthropy and government entities rely on intermediaries to allocate funds and, although many of the community organizations would like to see this funding be available directly to them, not many of these groups have the capacity to take this on. Therefore, increasing a community's ability to manage grants and engage in re-granting would expand their capacity to participate in continued resilience planning.

Where there are few or small community-based organizations, leadership training for community members is essential. One suggestion was to create a "leadership school" run by community leaders, which would help develop an area's organizational capacity. In these communities, funding and resources should be allocated towards initiatives that prepare local leaders to drive climate-resilience initiatives in their communities.

Move Beyond Engagement to Partnership

Community organizations can become more active participants in planning processes, not merely facilitators for outreach.

Several community organizations suggested that they should have been brought in at earlier stages of the competition when there was more room to shape and direct the teams' engagement strategies and design focus to reflect their needs and concerns. Others suggested that more funding should be allocated to organizations to expand their capacity for participation without detracting from their ongoing work or overwhelming them. Organizations recognize the benefit of participating in planning initiatives, but with so many overlapping and uncoordinated programs, their resources and energy are often stretched thin. Developing proposals to inform and coordinate between the different stakeholders involved in these long-term, multi-pronged projects would create greater avenues for consistent community involvement.

Incorporate Equity Into Resiliency

Resilience-related projects should incorporate equity and environmental issues to avoid repeating historic patterns and conditions that increase a community's vulnerability.

Planning and design initiatives need to acknowledge that the vulnerabilities exposed in many Sandy-impacted communities are the result of a history of marginalization and a legacy of previous non-inclusive planning and development ideologies. Many funding streams or revitalization programs are part of this legacy. Resiliency efforts need to bring underlying issues such as equity and environmental justice to the forefront of the rebuilding/rethinking conversation.

Through the Rebuild by Design approach, communities created coalitions with the goal to strengthen communities in the long-term. One example is Asbury Park: a divided community that has been further divided by a series of urban renewal projects and other policies through previous decades. The Rebuild by Design approach tried to overcome the Asbury Park's physical and ideological divides on a

number of levels. The design teams reached out to various project partners through the “Scale It Up” parade that crossed through and connected the city’s disparate zones. Similarly, the Hunts Point team prioritized ways of tapping into the collective knowledge of their project partners to try to incorporate the kind of locally-generated ideas and research-supported initiatives that have historically met setbacks through lack of funding or the changing priorities of the government.

Replicate What Works

Rebuild by Design’s effective model for collaboration should be incorporated into future resiliency initiatives. It can be broken into four categories: process, talent, funding, and leadership.

Process: Rebuild by Design’s unique process brought design to the forefront of resiliency, pushed for research and talent before buildings and solutions, emphasized collaboration before design, and fostered communication and collaboration among government entities, communities, design teams, and others. The organic process allowed for different methods of cooperation to interact, coexist, and share a timeline. Rebuild by Design’s urgency helped accelerate slow processes, such as meetings between government agencies, and helped intervene in over-hasty rebuilding plans to bring in academic, professional, and federal experts who could think about long-term visions for resiliency.

Nevertheless, as mentioned in an evaluation of the competition process conducted by the Urban Institute, Rebuild by Design “did not establish a clear administrative plan prior to execution, leading to crisis-driven management during execution.”¹ Incorporating the Rebuild by Design process more formally into a governmental structure would have benefits. Institutionalization, however, balances against the flexibility and dynamism that have been so critical to the project’s successes. Rebuild by Design’s innovation and creativity must be carried forward in an organic and flexible way.

Design: Design and politics are at the heart of our future’s resilient development. The design approach focuses research on the broad and specific challenges facing a location. It creates alliances between governments, developers, industry, designers and scientists working together on new planning and infrastructure. Design has the capacity to look back, research our past and explore future scenarios. As the severity of future climate impacts and uncertainties increases, decision-makers will be forced to use a design



¹ <http://www.rockefellerfoundation.org/uploads/files/4dec66ef-e199-429e-9323-258926ca44d2-rbd-phase-i.pdf>

driven, political approach to confront these challenges and catalyze resilient development.

Talent: The best ideas and practices that emerged from Rebuild by Design's research and proposal stages can help future project developers, communities, and wider networks of stakeholders create solutions that help communities implement short-term changes in line with long-term visions. By showcasing the lessons of these pilot projects, Rebuild by Design can help others to prepare for both recovery and resilience as they plan for the future.

Funding: Rebuild by Design's framework leveraged and catalyzed funding that enabled organizations to partner in unconventional ways. Philanthropy funded the research and design phase of the competition, so the proposals that went before HUD for CBDG-DR implementation funding were already highly developed. This model allowed for new types of collaboration between organizations and created a network of grantees receiving support from multiple funders. Because of this interwoven tapestry of government agencies, community organizations, academic institutes, and philanthropic groups, Rebuild by Design's initial funding acted as a catalyst for further grants and a means to connect initiatives from different agencies.

Inclusive leadership: Rebuild by Design assumed an important role of facilitating coordination, collaboration, and knowledge exchange between government agencies, communities, and different rebuilding efforts. As the focus shifts to project implementation, this inclusivity could be lost. Project partners have suggested that Rebuild by Design's main role moving forward be to maintain their leadership position in resiliency efforts: continue to be thought leaders and advocates of innovation, push proposals forward, spearhead the regional conversation, and engage and challenge government agencies, designers, and communities to achieve resilience.

Governance by Design: Planning, Managing and Governing for Resilience

Laura Tolkoff, Regional Plan Association

Introduction

Resiliency acknowledges our interdependencies and our shared responsibility to prepare for current and future conditions. To address emerging environmental and social challenges, we must operate at the scale of climatic and ecological regions in a way that puts communities first. However, neither regions nor communities are empowered with authority to make decisions on policies, projects, and investments that affect them. At the same time, the governance structures in place are fragmented and there are few incentives for municipalities to coordinate with one another, resulting in decisions that may not appropriately balance human, environmental, and economic needs.



Cameron Baylock
A waterfront home in Milford Connecticut is rebuilt to new ABFE standards.

The Rebuild by Design Experience

Regional Coordination

Climate change is an issue that must be addressed at a regional scale, but existing units and levels of government are often fragmented and have few incentives to coordinate. Fragmentation and lack of coordination make it difficult to address the impacts of climate change in a comprehensive and effective way.

Rebuild by Design challenged design teams to think regionally as they conceptualized and developed their design proposals. During the research phase, it was clear that Hurricane Sandy knew no boundaries and the design teams needed to propose boundaryless solutions that included new governance structures. Lack of regional governance or coordination came to the forefront as design teams continued to develop and refine their proposals. Teams found, for example, that upland towns have little or no incentive to temper development in order to minimize the level of storm water runoff that lowland neighbors and water bodies would receive in rainfall events.

Additionally, housing, transportation, and energy infrastructure in flood-prone areas might be owned, operated and regulated by many different parties. Consequently, design teams found it difficult to find consensus on adaptation strategies, determine acceptable levels of risk reduction, or devise long-term plans for management, maintenance, or ecological restoration.

Federal agencies are working to incentivize regional coordination. However, these incentives are unlikely to be strong enough to support the level of coordination required to build resilience-focused regional programs.

Empowering Regional Entities

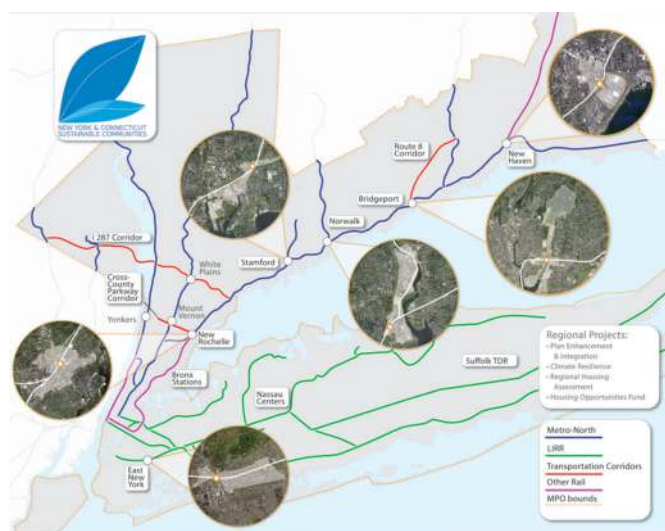
Where regional authorities do exist, they may not have the right mix of local support, regulatory authority, incentives and revenue mechanisms to achieve optimal outcomes. In addition, the leadership in regional authorities is often tied to local and/or state elected officials, making them highly politicized.

The New York Metropolitan Region has many regional authorities that work to coordinate transportation, preserve open space and manage growth. Examples include the Port Authority of New York and New Jersey, the Pinelands Commission, the Highlands Commission, the New York City Watershed Protection Program and the Meadowlands Commission. While better planning is necessary to mitigate our contribution to climate change, authorities must also

help the region adapt to the inevitable impacts of climate change. Regional governance structures will be necessary to address the scale of climate change, protect and restore shared natural resources, and manage potential conflicts that could emerge as cities and states take action to protect their waterfronts. A regional governance structure could lead, guide and initiate policy, planning, regulatory and implementation processes to prepare and build resilience on this critical regional scale.

Resilience requires a long-term commitment. Each of the existing regional authorities faces its own set of challenges, which makes it difficult to work towards this end. These factors make it difficult to design and implement a long-term vision.

Where regional authorities do exist, they must incorporate several key elements in order to be successful. These include active participation by all stakeholders, a method of dealing with inevitable conflicts, flexibility to learn and change over time, and real authority in the form of regulatory power, incentives and revenue-raising mechanisms¹. The regional authority must have the position and capacity to both unite local entities in a collaborative regional process and approach and to inform the local decision making by this regional process. Regional entities will need to have the right level of independence and authority to support long-



Regional Plan Association
The New York - Connecticut Sustainable Communities Initiative developed local projects under a shared regional vision.

term investments in resilience.

Inter-Agency Coordination

Agency policies at different levels of government—and even at the same level of government—are not always aligned. This

¹ Regional Plan Association, 2004, "New Jersey Highlands Regional Planning Luncheon & Symposium, February 10, 2004.

can make it difficult to ensure that projects are viable.

Rebuild by Design projects required the support of relevant cities, states, and federal agencies in order to be successful. However, it was not always easy to find agreement in the recovery objectives within different levels of government. Although the Hurricane Sandy Rebuilding Task Force put forth objectives for resiliency, state and local policies were sometimes in conflict with federal policy objectives or the ambition of Rebuild by Design. With absent coherence between levels of government, some teams found it challenging to identify sites and prioritize projects as they finalized their proposals. For others, some potential projects could not be fully considered because of a lack of coherence.

All the teams' work with different city, state, and federal agencies suggests the need for greater alignment and communication between agencies. Design teams that applied for federal grant programs for specific localities had to submit multiple applications and provide cost benefit analyses, requiring different methodologies and assumptions. Second, there were many cases in which one agency would bear most of the responsibility for building and maintaining a project, even though many agencies would share in the benefits of the project. Agencies and their policies could be better aligned to speed the recovery and rebuilding processes. This builds to the idea that a regional governance structure not only should align local forces, but should also be in a position to coordinate with federal agencies. If the region can be the unifying scale then federal and local fragmentations are less harmful on the ground.

Program Coordination

Many recovery and rebuilding programs were underway at the time that Rebuild by Design launched. These were commonly perceived as not fully coordinated, which often led to confusion and exacerbated planning fatigue.

Rebuild by Design launched at a time when other disaster recovery programs and plans were already underway. New York City had completed its Special Initiative for Recovery and Rebuilding (SIRR) and identified over 250 proposals to help make the city more resilient. New York State's New York Rising program was already working with hard-hit neighborhoods to create community-based recovery plans. The New Jersey Recovery Fund had placed recovery managers in some of the state's most affected communities. This often led to confusion about how the recovery process was unfolding and which needs were being prioritized. Rebuild by Design worked to coordinate with each of these initiatives, but there were challenges

in working with affected-communities that were already participating in other planning processes, coordinating with different deadlines and addressing overlapping geographies or issues. Greater coordination at the outset could have found opportunities to build a more robust research program to complement each other, and to work in affected communities that were not fully served by existing programs.

Rebuild by Design's coordination with other programs allowed for design proposals that built off of previous plans and these often found more local support. Where local priorities were already articulated, and these could be improved using a resilience lens, design teams were able to secure greater buy-in from their partners in government and the civic sector.



Sasaki + Arup + Rutgers

The Jersey Shore is fragmented but is situated right next door to the New Jersey Highlands, which is overseen by a regional authority, the Highlands Commission (portrayed in green).

Questions for Discussion

- What are good examples (across the world) or best practices that can inspire this region's regional collaboration? Both formal and informal.
- How can community resilience be matched with regional resilience?
- What are the advantages and disadvantages of expanding the authorities of existing regional entities, such as the Meadowlands Commission, the Long Island Pine Barrens Commission or the Port Authority, to enable them to effectively undertake climate adaptation projects?
- How can federal, state and local agencies work together to make sure that the needs of all disaster-affected communities can be met more equitably? Is the Hurricane Sandy Rebuilding Task Force a good example and should it have been continued to guide the region's resilience efforts? (see also ULI report: <http://uli.org/press-release/after-sandy-report/>)
- What can we learn from the Sustainable Communities Regional Planning Grants/ Sustainable Communities Initiative in fostering collaboration and addressing regional challenges such as transportation, growth management and resilience? Also use/add other initiatives across the nation/world?
- Is there a need to mandate or incentivize regional planning to address climate adaptation and coastal resilience? What are the best mechanisms to do so? And how and who to mandate to?
- How can the regional offices of federal agencies work with state and local governments to support resilience?

Lessons Learned/What we heard

The Rebuild by Design Policy Roundtable included a breakout session targeted at addressing these questions. It featured moderator Holly Leicht, Regional HUD Administrator, with Roland Lewis, President and CEO of Metropolitan Waterfront Alliance, Edward Anthes-Washburn, Deputy Port Director of New Bedford Harbor Development Commission and Chad Berginnis, Executive Director of Association of State Floodplain Managers. Their presentations and the ensuing conversation emphasized the strong need to leverage and support regional and local roles in land-use management and resource protection by improving policy and program integration at all levels. At a policy level, this might include provisions for appropriate financial incentives and disincentives and increasing the availability of information for coastal management decision-making. Federal agency participants present for this discussion brought up a number of areas where federal interagency and interdisciplinary investigations could explore causes and potential solutions to enhance future resilience and sustainability. There was also some discussion of national precedents for integrated governance that can act at a regional scale and be tasked with oversight and management, maintenance, information gathering and coordination, coastal waterfront design, long-term planning and regional coordination. However, an integrated municipal policy for managing the NY-NJ waterfront still does not exist.

Support education, outreach and training

All partners of Rebuild by Design and the wider network of agencies should build institutional awareness of the need to address and incorporate resiliency through an aggressive public information campaign.

Through the generation of knowledge and resources, this information can help decision makers advocate and support long-term goals. While there is a need for visionary leadership, this should be paired with consistency and a network of organizations backing up this leadership role. Institutional awareness through continual engagement combined with outside support for resiliency efforts that are meaningful and inclusive will help build the necessary foundation for long-term resiliency planning and support.

Formalize regional coordination

The Hurricane Sandy Rebuilding Task Force created to coordinate efforts after Sandy should be formalized to maintain and further resiliency efforts in the region.

The participants noted that it was necessary to have a vision for bridging short-term implementation goals with a plan for long-term coordination. For the task force to be successful in helping expedite project implementation, the group will need to interact regularly and set up streamlined approval processes. Participants stated that the different government entities would need continued senior-level support to move projects forward as well as finding opportunities to replicate and streamline ideas and processes.

A call for the development of a regional waterfront authority or entity – as well as a new port authority, which includes commerce, waterfront design and maintenance under one umbrella – were some of the recommendations made by the governance group to tackle regional resilience coordination. This regional authority would need different strategies to build local capacity in order to use local champions to further their mission. Similarly, this regional entity would need to coordinate closely with communities so they own the projects and become involved throughout the process.

To encourage regional coordination, it is critical to share ongoing information and take an inventory of best practices as well as monitor the different projects to identify what is working and what is not over time. This will not only promote sharing of information between the teams that remain involved but also between the different agencies involved in these projects. This regional collaboration could answer questions on multiple levels as well as keep track of the different projects and the cumulative impact of these efforts.

Remove barriers to attract different funding sources

All partners of Rebuild by Design should continue to facilitate and identify other non-disaster related sources of money that can be leveraged for resiliency.

Rebuild by Design's process highlighted that ideas and proposals generate momentum and energy when they are paired with resources. By comparing Rebuild by Design to other government processes, such as HUD's Sustainable Communities Initiative, it was highlighted that by attaching implementation dollars to ideas, conversations focused more on implementation than regulation. There was an emphasis in creating a process to take inventory of the different resources and generate a best practices platform.

Restoration by Design: Incorporating Nature-Based Solutions into Climate Adaptation

Robert Pirani, New York - New Jersey Harbor & Estuary Program

Introduction

The estuaries and coastlines that surround the metropolitan area are among the most productive ecological systems on earth, critical habitat for globally significant migratory birds and fisheries and a recreational amenity and economic driver for millions of residents and tourists. But these open waters, wetlands, beaches and shorelines are now also being considered for physical structures to protect our communities from devastating floods.

Many Rebuild by Design teams identified opportunities to build resilience using nature-based solutions that mitigate current risk and future climate impacts. These techniques, including ecosystem restoration, living shorelines, green infrastructure and other approaches, utilize or mimic the protection offered by natural coastal features to help reduce risks while providing other important environmental and social benefits.

As they developed their design proposals, Rebuild by Design teams identified a number of specific challenges for incorporating restoration into their resiliency proposals, presented here as a series of problem statements. These include: a lack of baseline knowledge and science concerning existing coastal habitats, limited engineering experience with the efficacy and sustainability of such interventions, difficulty in quantifying benefits and costs and enabling co-benefits to be accounted for in funding decisions, challenges in aligning related policies and investments especially for water quality improvements, and enabling effective permitting for projects that enhance habitat while achieving hazard reduction.

The Rebuild by Design Experience

Baseline Knowledge

There is a lack of basic information as to the underlying physiography and ecological conditions of shorelines, shallow waters and other coastal areas. This can make it difficult to understand existing habitat and ecological processes, design innovative interventions, and monitor or evaluate the performance of interventions for flood control or habitat enhancement.

The team's conversations with federal and state regulators surfaced the need for better understanding of existing habitat and ecological processes. Basic information as to the underlying physiography and ecological condition of shorelines, shallow waters, and other coastal areas is limited in scope and geographic coverage. For example, the SCAPE team found it difficult to identify the precise location for their living breakwaters because of a lack of detailed benthic mapping for Raritan Bay. Additionally, although some assessments are available for specific properties controlled by the New York City Economic Development Corporation, there is no comprehensive assessment of current shoreline conditions. Each project often has to undertake its own baseline research and find its own pathway toward a permit approval, with no public agreement as to what information is critical for decision makers.

Engineering Experience

The use of nature-based solutions for flood protection is new. A lack of precedent can make it difficult to design, permit, site, raise capital for, and construct such systems.

Rebuild by Design challenged design teams to address different ecological threats and opportunities through their proposals. While projects that involve "re-naturing" of emergent wetland, coastal dune, and upland systems have a variety of successful (as well as unsuccessful) restoration

experiences to draw from, there is less documentation of nature-based or integrated systems that combine flood protection and ecological goals. The lack of prior knowledge makes it more difficult and costly to design such systems. It limits the confidence that funders, regulators and the public will have in nature-based systems.

Moreover, any such living system requires extensive long term monitoring and stewardship, and an adaptive management framework that will allow alterations to succeed. Public agencies often lack standing or the funding to undertake such a long-term life cycle approach.



The WB Unabridged Yale Arcadis team explored a proposal to restore the Pequonnock River and improve water quality for shellfish

Quantifying Benefits

Quantifying ecosystem benefits is difficult. Baseline information is often lacking or incomplete, and there is no standard methodology for quantifying environmental benefits and costs among the resource agencies that are funding restoration and resilience work.

Each design team was asked to prepare a benefit/cost calculation to show both flood risk reduction as well as environmental and social benefits of the proposed project over a 50-year time horizon. One challenge for nature-based methods is the limitations of modeling tools to show risk management benefits. Limited knowledge of baseline values and a lack of standard methodologies for quantifying ecological benefits also made this assignment a challenge. The relative habitat value of most shorelines and shallow water habitat in the New York/ New Jersey Harbor is not documented, making it difficult to assess the ecological lift provided by restoration without detailed site investigations for each project. While a variety of federal agencies are striving to account for environmental benefits, currently the accepted practice varies from agency to agency.

Aligning Related Policies

Better alignment of planning, regulation, funding and management are needed in order to maintain green infrastructure while balancing human, environmental and economic uses of the waterfront.

Nature-based solutions are living systems that often require cooperation between many different stakeholders. Landowners and engineers must rely on regulators and wastewater dischargers to ensure that water quality will support planted wetlands. Public access must be managed so that recreational use does not erode planted dunes or berms. Some installations can be attractive nuisances that place people at risk.

The success of nature-based features depends not just on the relatively simple calculations of physical construction, but also on the more complex dynamics of living systems – including benefits to people. For proposals that incorporated ecological enhancement as part of their rationale, this requires reliance on policies and practices outside the scope of the project proponent, funder, or design team. A more integrated approach to planning, regulatory, funding, and management would help ensure success of these projects.

Enabling Effective Permitting

We need to enable effective permitting for projects that seek to enhance habitat while achieving hazard reduction.

Rebuild by Design generated innovative solutions that combined physical protection with the provision of ecological services, including habitat restoration, sediment management, and the biological treatment of pollution. However, limited resources available to regulators, the lack of experience with such systems, and the specter of large modifications to the shoreline have led so far to a cautious permitting approach.

Because of the public's interest in conserving the limited acres of open water, wetlands, and important habitat that remain in the region, federal and state agencies require a number of different permits for any construction. Filling of open waters and wetlands is generally restricted when there is a viable alternative. Mitigation is required when habitat is lost, and it must generally be on-site and in-kind. Recognizing the ephemeral and shifting nature of our shorelines, there is a bias towards allowing erosion to proceed. The design teams proposed a variety of innovative solutions that combined physical protection with provision of ecological services, including habitat restoration,

sediment management, and biological treatment of pollution. But with limited resources available to regulators, the lack of long-term experience with such systems, and the specter of opening the door to large-scale commercially-oriented alterations of the shoreline, have led to a cautious approach to permitting.

Questions for Discussion

The response to climate change will be most effective when policies and programs are leveraged through coordination at the regional scale.

- Is there a need to mandate or incentivize regional planning to address climate adaptation and coastal resilience? What are the best mechanisms to do so?
- What are good examples or best practices that can inspire this region's regional collaboration?
- What can we learn from the Sustainable Communities Regional Planning Grants/ Sustainable Communities Initiative in fostering collaboration and addressing regional challenges such as transportation, growth management and resilience?
- What are the advantages and disadvantages of expanding the authorities of existing regional entities, such as the Meadowlands Commission, the Long Island Pine Barrens Commission or the Port Authority, to enable them to effectively undertake climate adaptation projects?
- How can federal, state and local agencies work together with communities to define what successful recovery of the region looks like?
- How can they institute methods of measuring progress towards success?
- How can community resilience be matched with regional resilience?



SCAPE/ Landscape Architecture
SCAPE created an Oyster Gardening Manual to promote education and stewardship of oyster habitats.

Lessons Learned/What we heard

During this session, we heard from regulators, designers and scientists who are actively engaged in reducing flood risk through ecological restoration. Each speaker reiterated common challenges, such as the availability of comprehensive, up-to-date and high quality data to make regulatory and design decisions. In addition, regulators, designers and scientists highlighted the “need to do” – the need to experiment with nature-based techniques and learn from the experiments even if all the required information is not available. Participants also expressed that community engagement in the form of education, concrete examples and stewardship are required to ensure the success of nature-based solutions. Moreover, many felt that it required a fundamental shift in how we think about coastal communities and how they can interact with coastal infrastructure.

This breakout session featured Rob Pirani, Executive Director from New York – New Jersey Harbor & Estuary Program, Michele Siekerka, Assistant Commissioner of Water Resources of New Jersey Department of Environmental Protection, Venetia Lannon from New York State Department of Environmental Conservation, Gena Wirth from SCAPE/ Landscape Architecture and Kjirsten Alexander from The City College of New York. The below categories are the common themes that emerged from speakers and participant discussion.

Build a baseline understanding of ecological conditions

There is a need for baseline knowledge and comprehensive data to advance nature-based solutions.

The availability of comprehensive, up-to-date and high quality data is lacking to make regulatory and design decisions. The lack of information hinders the development of innovative solutions, the development of adequate permitting, as well as the understanding communities have of their coastal communities and the value associated with different habitats. This data needs to be comprehensive, compelling, and most importantly, accessible to different types of audiences.

Regulatory agencies should set data standards as well as facilitate data collection and data sharing among users.

There are numerous data needs that could help designers, ecologists, advocates and regulators make good decisions about what to build and where to build in the water. Data are often collected on a piecemeal basis for each project site, at different times of the year, and in different ways. More consistency in data collection across a larger geography

is required to get a better sense of in-water conditions. Furthermore, it is critical that this data is collected, curated and made easily available to those who could benefit from such information, including designers, ecologists, residents, regulators, researchers and more.

Some participants suggested a data clearinghouse in order to identify gaps and facilitate data sharing for the Sandy-affected region. A designated entity or series of entities should facilitate the creation and sharing of needed data as well as help identify current gaps. Two entities emerged as suggestions for playing this role – The New York-New Jersey Harbor Estuary Program (HEP) and the Open Accessible Space Information System (OASIS). This clearinghouse can build upon existing project-based data or by aggregating existing data for small geographies. Data from Environmental Impact Assessments and similar documents should be made accessible in a common format that can be incorporated into these comprehensive datasets. In the same way that federally funded projects have requirements for data standardization, there needs to be a way in which different projects collect and catalogue data in a consistent way so that comprehensive datasets can be developed quicker. In order to produce standardization, big data managers, data designers and regulators should be involved in creating an accessible, understandable and useful dataset.

Another important step would be the creation and acceptance of performance metrics for various shoreline and benthic conditions. Since developers can be rewarded based on the achievement of specific performance measures as well as penalized when performance standards are not met, these metrics can help drive change and move development in the needed direction. Such metrics would help engineers and regulators establish baseline conditions and enable better understanding of the tradeoffs between habitat types and ecological characteristics.

The development of resiliency projects should be accompanied by monitoring and stewardship plan/proposals in order to generate knowledge.

Monitoring, research, and management must be accounted for in the project design, approval and development. Shared assessment and performance metrics, monitoring requirements and management techniques for living shorelines and other nature-based resiliency measures are critical to their success. State agencies and forums like HEP and the Hudson River Estuary Program (HREP) could work together to help reach agreement on the specific methods required to test, implement, and evaluate techniques to increase the knowledge, efficacy, and comfort level with living shorelines and other nature-based resiliency measures. This work will also help determine appropriate scales for any pilot projects being considered. This

work will build on the overall assessment being conducted by HREP and its Coastal Green Shoreline Infrastructure Strategies project.

Develop a Multi-Dimensional Benefit-Cost Analysis (BCA)

Develop a standardized approach or set of principles for Benefit-Cost Analysis (BCA) that all regulatory agencies utilize and incorporates social, ecological, and other factors

Many participants thought there should be a standardized approach to cost-benefit analysis that allows for comparisons between analyses and predictions/projections. Throughout the Rebuild by Design process, many teams confronted this issue and there was an effort to standardize their approach by providing one framework for all teams to use. This framework was approved for use during the competition. Standardized BCAs would enable better decision-making as well as create an avenue to communicate these analyses to a wider public audience.

Participants highlighted the true complexity of standardizing BCAs. Currently, agencies have their own BCA analysis standards that are different from each other. Since every variable in a BCA is determined by the goal of the analysis, it might assess, weigh and prioritize different things according to the goal it is trying to measure. Nevertheless, by aligning resiliency goals and various baseline assumptions in the federal family, standardized BCAs can be achieved that include a pro-active analysis with co-benefits such as ecological gains, improvements in quality of life, and aesthetic beauty. Similarly, BCAs should be informed by the development of a scarcity index that would highlight the variance/importance of a natural resource in different places. BCAs usually respond to specific needs or an agency's funding purpose (i.e. hazard mitigation, wetland preservation, flood risk reduction). Under the resiliency umbrella, agencies should think more broadly in terms of their focus so as to be able to align BCA frameworks across agencies.

Strengthen Public Participation

Agencies should engage and incorporate communities in their resilience planning processes to build and foster resilience through education.

In order to advance resiliency measures, communities need to have a better understanding of the problems their communities face as well as what risks they face. This is especially important with nature-based approaches, as

their benefits may not be as intuitive or understandable as traditional approaches. This engagement and information sharing will help communities identify what different solutions accomplish and how they address different problems and/or risks. Using natural systems for flood protection requires a fundamentally different way of thinking of coastal communities. There needs to be education programs incorporated in the development of these demonstration projects where communities can be informed and educated, creating local buy-in. Much of this information needs to be generated and/or become accessible and understandable to a wider public.

As part of Rebuild by Design's implementation stage, each project should be required to develop communication strategies.

In order to continue to foster buy-in, address community needs and facilitate transparency in the implementation stage, each project team needs to develop a comprehensive communication strategy. While many local stakeholders were plugged into the Rebuild by Design process, additional stakeholders will become aware and develop greater interest as the projects continue to go through public review/comment and start construction.

The RBD process developed compelling images and concepts, and these should be utilized for creating awareness and continued engagement. Programs such as RAMP (Recovery, Adaptation, Mitigation and Planning) at Pratt have focused on these types of initiatives, where the information is made readily accessible and demonstration projects are exhibited in communities for an extended amount of time to foster engagement and develop additional ideas and dialogue.

Agencies and advocates should have a clear, unified message about vulnerability, resilience, and risk reduction.

In the case of the Sandy affected region, there needs to be a clear understanding about what is at risk, who is at risk, and over what time frame. Many of the Rebuild by Design projects, along with other federal, state, and local initiatives, strive to modify the shoreline, and the different immediate technical and operational processes can sometimes cloud the long-term picture. Similarly, as infrastructure projects move along, it is important to make clear what each infrastructure project will do to reduce, exacerbate or transfer different types of risk. For example, the SCAPE team was very clear that the breakwaters designed for Staten Island's southern shore would attenuate waves and stop erosion, but they would not stop people's basements from flooding.

Appendix A:

Policy and Implementation Roundtable

June 27, 2014

20 Cooper Square, 7th Floor

New York, NY

Registration and Light Breakfast

Welcome and Introductions

Henk Ovink, Principal, Rebuild by Design

Framing the Topics of the Day

Collaboration by Design: How can government and civic infrastructure be strengthened to support the design and planning processes?

Rob Lane, Regional Plan Association

Governance by Design: How do we improve governance to address regional challenges?

Scott Davis, U.S. Department of Housing and Urban Development

Restoration by Design: How do we incorporate nature-based solutions into climate adaptation?

Rob Pirani, New York & New Jersey Harbor & Estuary Program

Break and Transition to Breakout Sessions

Breakout Session Part 1

Lunch

Breakout Session Part 2

Report-Out and Wrap-Up Discussion

Henk Ovink, Principal, Rebuild by Design

Adjourn

Collaboration by Design: How can government and civic infrastructure be strengthened to support the design and planning processes?

Moderator: Mary Rowe, Municipal Art Society

Speakers:

Damaris Reyes, Executive Director, Good Old Lower East Side
Amy Quinn, City Councilwoman, Asbury Park
Kathleen Dorgan, Principal and Owner, Dorgan Architecture & Planning

Communities must be the drivers of resilience. Rebuild by Design built coalitions with local governments and community groups to create design proposals that are made in partnership with, and supported by, communities. Many of the winning design proposals were successful because of these coalitions, which helped the Design Teams access information, coordinate efforts and leverage local expertise. However, far too many local governments and communities lack the capacity to engage in long term planning and political processes. What are the opportunities for strengthening government and civic infrastructure to address climate change and to achieve resilience?

Governance by Design: How do we improve governance to address regional challenges?

Moderator: Holly Leicht, Regional Administrator, U.S. Department of Housing and Urban Development

Speakers:

Roland Lewis, President and CEO, Metropolitan Waterfront Alliance
Edward Anthes-Washburn, Deputy Port Director, New Bedford Harbor Development Commission
Chad Berginnis, Executive Director, Association of State Floodplain Managers

Resiliency acknowledges our interdependencies, our vulnerabilities and our shared responsibility to prepare for current and future conditions. To address emerging environmental and social challenges, we must operate at the scale of climatic and ecological regions, and in a way that puts communities first. However, neither regions nor communities are empowered with authority or budgets to make decisions about policies, projects and investments that affect them. At the same time, the governance structure that is in place is fragmented - both within governments and across - and there are few incentives to coordinate with each other, resulting in decisions that may actually increase vulnerability to the next disaster.

Restoration by Design: How do we incorporate nature-based solutions into climate adaptation?

Moderator: Rob Pirani, Executive Director, New York – New Jersey Harbor & Estuary Program

Speakers:

Michele Siekerka, Assistant Commissioner of Water Resources, New Jersey Department of Environmental Protection
Venetia Lannon, Regional Director, New York State Department of Environmental Conservation
Gena Wirth, Associate, SCAPE/ Landscape Architecture
Kjirsten Alexander, Research Associate, Structures of Coastal Resilience, The City College of New York Jamaica Bay Team

Hard or “gray” solutions are not the only way to protect against future climate impacts. Soft or “green” solutions, including ecosystem restoration and building with nature, can help minimize risks while also providing other environmental benefits. Many Rebuild by Design Teams identified opportunities to build resilience with nature-based solutions, but encountered many challenges in existing regulatory approaches. These include: in-water permitting, habitat replacement and enhancement, cost benefit frameworks, navigable waterway designations, impaired waterway designations, and a lack of baseline knowledge. What types of information and policies are needed to advance nature-based solutions?

Appendix B:

Attendance List

Alda	Chan	NYC Parks Department	Gail	Helfrick	ESTC, Asbury Park
Alex	Zablocki	New York Rising Community Reconstruction Program	Gena	Wirth	SCAPE
Alexandros		Washburn Stevens Institute of Technology	Georgeen	Theodore	Interboro Partners
Alexis	Taylor	Rebuild by Design	Heather	Hansberry	New Jersey Department of Environmental Protection
Alyssa	Konon	NYC Department of Parks and Recreation	Helen	Chin	Surdna Foundation
Amy	Chester	Rebuild by Design	Henk	Ovink	Principal, Rebuild by Design
Amy	Quinn	Asbury Park City Council	Holly	Leicht	U.S. Department of Housing and Urban Development
Andrew	Martin	Dewberry	Ingrid	Gould Ellen	NYU Wagner
Aron	Chang	Waggoner & Ball Architects	Irene	Chang-Cimino	U.S. Department of Housing and Urban Development
Barbara	Wilks	HR&A Team	James	Lima	James Lima Planning and Development
Beth	Christensen	Adelphi University	James	Robinson	Federal Aviation Administration
Byron	Stigge	LEVEL	Jay	Borkland	Apex Companies
Captain	Bill Sheehan	Hackensack Riverkeeper	Jeffrey	Seeds	ESTC, Asbury Park
Carrie	Grassi	City of New York	Jennifer	Souder	Queens Botanical Garden, Asbury Park
Catherine	Seavitt Nordenson	City University of New York	Jeremy	Siegal	BIG
Chad	Berginnis	Association of State Floodplain Managers	Jerome	Chou	Van Alen Institute
Chris	Sturm	New Jersey Future	Jess	Garz	Surdna Foundation
Christopher	Goeken	New York League of Conservation Voters	Jesse	Keenan	Columbia University
Courtney	Smith	The Municipal Art Society	Jessica	Grannis	Georgetown University
Damaris	Reyes	Good Old Lower East Side	Jim	Ruocco	Operation Splash
Damon	Rich	City of Newark	Joan	Byron	Pratt Institute
Dan	Zarrilli	Office of Recovery and Resilience	Joanna	Field	New York State Department of Environmental Conserv
Danae	Alessi	City College of New York	John	Moyle	NJ Department of Environmental Protection
Daniel	Kidd	BIG Team	Josh	Laird	National Parks Service
Dare	Brawley	Regional Plan Association	Juan Camilo Osorio		NYC Environmental Justice Alliance
David	Bean	NJ Department of Environmental Protection	Judy-Ann	Mitchell	U.S. Environmental Protection Agency
David	Kooris	City of Bridgeport	Juliet	Gore	Rebuild by Design
David	Rosenblatt	NJ Department of Environmental Protection	Kate	Ascher	Happold Consulting
David	Waggoner	Waggoner and Ball Architects	Kate	Dineen	New York Rising Community Reconstruction Program
Deborah	Lawlor	New Jersey Meadowlands Comission	Kate	Hagemann	Urban Ecology and Design Lab
Diane	Crean	Federal Aviation Authority	Kate	Orff	SCAPE
Douglas	Adams	Metropolitan Waterfront Alliance	Kathleen	Dorgan	Dorgan Architecture and Planning
Douglas	Pabst	U.S. Environmental Protection Agency	Kelly	Terry-Sepulveda	The Point CDC
Eddie	Bautista	NYC Environmental Justice Alliance	Kijrsten	Alexander	City College of New York
Edward	Anthes-Washburn	New Bedford Harbor Developemtn Comission	Klaus	Jacob	Columbia University Earth Institute
Elain	Mahoney	National Oceanic and Atmospheric Administration	Kristian	Koreman	ZUS [Zones Urbaines Sensibles]
Eli	Sands	City College of New York	Laura	Tolkoff	Regional Plan Association
Eline	Toes	Regional Plan Association	Lisa	Baron	USACE
Ellen	Neises	The University of Pennsylvania School of Design	Leslie	Tomic	Federal Emergency Management Association
Eric	Goldstein	Natural Resources Defense Council	Lucrecia	Montemayor	Regional Plan Association
Eric	Klinenberg	New York University	Mary	Rowe	Municipal Art Society
Eric	Sanderson	Wildlife Conservation Society	Maxinne	Leighton	Parsons Brinckerhoff
Eugenic	Birch	University of Pennsylvania	Michael	Audin	Federal Emergency Management Association
Eva	Durst	The Durst Organization	Michael	Marrella	NYC Department of City Planning

Michael	Porto	Metropolitan Waterfront Alliance
Michele	Siekerka	New Jersey Department of Environmental Protection
Mitchell	Silver	NYC Parks Department
Naomi	Frankel	U.S. Army Corps of Engineers
Nathan	Woiwode	The Nature Conservancy
Nancy	Kete	The Rockefeller Foundation
Nick	Martin	Senator Scharles Schumer
Nicole	Maher	The Nature Conservancy
Olivia	Moss	HR&A Advisors
Peter	Glus	WB Unabridged Team
Peter	Weppeler	U.S. Army Corps of Engineers
Philippa	Brashear	Parsons Brinckerhoff
Piet	Dircke	Arcadis
Rabi	Kieber	U.S. Environmental Protection Agency
Richard	Baldwin	Apex Companies
Rob	de Vos	Consulate General of the Kingdom of the Netherlands
Rob	Lane	Regional Plan Association
Rob	Pirani	Hudson River Foundation
Roland	Lewis	Metropolitan Waterfront Alliance
Roy	Segal	Urban Ecology and Design Lab
Samantha	Medlock	ASFPM
Scott	Davis	U.S. Department of Housing and Urban Development
Steve	Zahn	New York State Department of Environmental Conserv
Suzette	Harper	NYC Department of Parks and Recreation
Tara	Eisenberg	Rebuild by Design
Tatianna	Echevarria	Surdna Foundation
Terrence	Brody	NJ Department of Environmental Protection
Theo	Spencer	Senior Advocate, NRDC
Tom	Dallessio	New Jersey Institute of Technology
Tyler	Silverstro	WXY Studios
Venetia	Lannon	New York State Department of Environmental Conserv
Walter	Meyer	Local Office Landscape Architecture
William	Solecki	Hunter College
Yaacov Eyal	Ruthenberg	MIT/ZUS/Urbanisten Team
Ya-Ting	Liu	New York League of Conservation Voters
Zachary	Richner	New York League of Conservation Voters
Zoe	Baldwin	Senator Cory Booker
John	Beldin-Quinones	U.S. Army Corps of Engineers
James	Lodge	
Robert	Nyman	
Lisa	Baron	

