SEA CHANGES

COMMUNITY-CENTERED PLANNING IN AN ERA OF HIGH RISK AND UNCERTAINTY

October 1, 2021

Final Report on the

GLOBAL TRANSFORMATION ROUNDTABLE

CONCORDIA LLC, RESILIENT CITIES CATALYST, THE UNIVERSITY OF NEW ORLEANS

Funding provided by The Rockefeller Foundation & The Walton Family Foundation

FORWARD

In this era of deep uncertainty, I too often feel overwhelmed by the various possible futures my children and future grandchildren face in these, the early years of the Anthropocene, that new geological era defined by humankind's reshaping of our world. The changes swirling around us each day offer a glimpse to a terrifying and disastrous future. I gain some comfort in knowing that while things look bad--we can at least see more clearly into the future than ever before in the history of our species, a state of knowing that creates at least the opportunity to take action and become more resilient to future shocks and stresses.

When I think about what must be done, I consider a core idea from resilience theory, that complex systems must have three distinct capacities to function over time: 1) Absorptive Capacity, 2) Adaptive Capacity, and 3) Transformative Capacity. As a species, we have spent an enormous amount of time and effort, accumulated through tragic lived experience, deeply understanding how to absorb impact: how to take a hit, how to build a stronger wall, how to gird for impact. More recently, just in the past 20 years or so, we have started to understand what adaptation at scale could look like--elevating homes and infrastructure, moving communities uphill, and retrofitting homes with air filters and AC.

What we have yet to really comprehend as a species is what transformation will be required, and what it should look like. As the August 2021 IPCC report makes explicitly clear, we are locked into a century's worth of significant changes already, and we have little reason to be hopeful that we won't blast past the 1.5 C or 2.0 C thresholds we've established as goals for ourselves. Indeed, it will take nothing short of the most rapid shift in trajectory ever known in human history to avoid the most devastating impacts. Understanding what transformation is required--and how it might in fact create positive outcomes for many--is important work for all of us over the coming decades.

This is the context for The Global Transformation Roundtable, which was conceived as an effort to bring together experienced voices who are--and have been--living on the edge of change. At the time, I was a Managing Director of The Rockefeller Foundation and working with cities and communities around the globe to understand and build better and more resilient communities. Researchers and practitioners from cities like Da Nang, Vietnam; Santa Fe, Argentina; Vejle, Denmark; and New Orleans, United States, are effectively living in some version of the rest of the world's future, more exposed to today's climate impacts. People in places like these are figuring out things today that we will all need to know. The sequence of convenings and research that comprises the Roundtable is our effort to cultivate and harvest these learnings, which we have represented here in the "Findings" section of the report.

As I write this note, New Orleans is waking up from Hurricane Ida, which made landfall on August 29, 2021 as a Category 4 storm, 16 years to the day from Katrina. As of publication of this report, we don't know the full extent of its damage--and won't for many months. I have been working in and around the City of New Orleans and neighboring communities on the Gulf Coast since 2005 after Katrina as a researcher with the Social Science Research Council. Like many who came to discover this corner of the world in the worst of all possible circumstances, we were inspired by the joy, the grit, and the love that binds the people of New Orleans together. I believe my chief learning from nearly two decades of work in this region is that resilience is driven by something deeply human--love for a place, and love for each other. It's the reason that New Orleans is remade again and again through tragedy. The question is still open though on whether it and so many other places can transform--and yet remain--themselves, renewed over the next hundred years.

Sam Carter
Founding Principal, Resilient Cities Catalyst

TABLE OF CONTENTS

Cover art: *Breaking the Waves* by Anne Blenker http://www.anneblenker.com/

1 PROLOGUE

"In 2012, at the request of the U.S. Climate Change Science Program, NOAA scientists conducted a review of the research on global sea level rise projections. In 2017, these projections were revised upward following a review by the U.S. Interagency Sea Level Rise Taskforce. Based on their new scenarios, global sea level is very likely to rise at least 12 inches (0.3 meters) above 2000 levels by 2100 even on a low-emissions pathway. On future pathways with the highest greenhouse gas emissions, sea level rise could be as high as 8.2 feet (2.5 meters) above 2000 levels by 2100. This higher worst-case scenario—which is extremely unlikely, but can't be ruled out—is largely due to new observations and modeling on ice loss from Antarctica and Greenland. Since the 2012 report, new research has emerged showing that some of the more extreme estimates of how quickly those ice sheets could melt were more plausible than they previously seemed. In all cases, however, rising sea levels are increasing coastal flood risk. High-tide flooding is already a serious problem in many coastal communities, and it is only expected to get much worse in the future with continued rising seas." https://www.climate.gov/news-features/understanding-climate/climate-change-global-sea-level

To address these existential global challenges, The Rockefeller Foundation, in collaboration with Concordia LLC and the University of New Orleans - Center for Hazards Assessment, Response and Technology, created a three-year project called the Global Transformation Roundtable (GTR). The project aimed at exploring the knowledge created through research, development, and adaptation to climate-related challenges through a co-design process of communication, collaboration, and coordination across sectors, disciplines, and scales. The goal of the project was to then apply this knowledge in identifying some of the immediate and long range challenges, solutions, and strategies needed to tackle the complex, interrelated factors of flood risk and other chronic stressors for communities and individuals living in Louisiana, as well as in similarly compromised sites around the world.

2 EXECUTIVE SUMMARY

This report documents the outcomes of the Global Transformation Roundtable (GTR), a three-year partnership between Concordia LLC and the University of New Orleans that also included co-planning affiliations with the Disaster Recovery Unit of the Louisiana Office of Community Development and the Foundation for Louisiana. The intended outcome of this work is to supplement the growing body of knowledge on planning for community resilience at the local, state, national, and global levels, based on the risks and impacts associated with land subsidence, sea level rise and other climate and natural stressors. The goal is to identify collective understandings of how to plan for and adapt to uncertain futures with equity and advocacy as central considerations. To tackle these issues, the following goals were established for the project:

- Develop foresight by understanding the major existing and emerging **challenges** to enhancing livelihoods and well-being due to climate change.

- Identify **solutions** to the most pressing adaptation questions in a way that makes the research useful to at-risk communities.

- Create **strategies** for community-based responses to the impacts of climate change.

To achieve these goals, the Global Transformation Roundtable drew from the valuable lessons learned from the Louisiana Office of Community Development's LA SAFE climate change risk assessment and adaptation planning process, coupled with global adaptive strategies gathered through a series of small meetings, focus groups, exploratory convenings, research papers, and dialogues with a diverse group of local and global stakeholders.

LA SAFE engagement meetings

CONVENINGS

The first convening was held at the Ashe Cultural Arts Center in New Orleans. The convening's primary objective was to focus on the Louisiana Strategic Adaptations for Future Environments (LA SAFE) project, a comprehensive planning effort funded by the US Department of Housing and Urban Development, to address community resilience holistically – integrating risk planning with planning for storm water management, housing, transportation, economic development, education, recreation, and culture in six coastal Louisiana parishes. The project, led by the Louisiana Office of Community Development, Disaster Recovery Unit (OCD), in partnership with the Foundation for Louisiana was then in the early stages of development. The goals of the LA SAFE project, were to generate parish-wide, community-driven adaptation strategies and opportunities for residents and stakeholders to proactively adapt to and prepare for anticipated environmental changes over the next 10, 25, and 50 years; to implement catalytic demonstration projects in each of six coastal Louisiana parishes; and to create a statewide adaptation model to enhance long-term sustainability and resilience for all Louisiana parishes.

Ashé Cultural Arts Center

The convening dialogue focused on four questions: 1) What are the strengths and weaknesses of the LA SAFE project? 2) What are the local opportunities and challenges posed by LA SAFE? 3) What are the national and international opportunities and challenges posed by LA SAFE? 4) How can knowledge be transferred between LA SAFE and other community transformation efforts?

The LA SAFE project provided a robust project-based catalyst for many of the contextual issues and parameters that would be explored in greater depth in the second GTR convening. To address these issues more authentically, the group of participants was expanded to include more local experts, whose insights and experiences would broaden the investigation in more substantive and meaningful ways.

The second convening took place in Buras, Louisiana. Participants included many individuals and entities most immediately impacted by coastal Louisiana's vulnerable geography, along with international adaptation experts from Denmark, Vietnam, and Argentina. The objectives were threefold: 1) To understand ways in which the ongoing work to mitigate risk and increase resilience in coastal Louisiana could help inform the broader global conversation around holistic community transformation catalyzed by environmental change; 2) to mine the expertise of national and global experts in climate resilience and adaptation to help advise and improve the LA SAFE project; and 3) to better understand how to break down silos and foster better policy, planning, and implementation across multiple sectors of government, nonprofits, and private entities. Attendees also investigated some of the local and global impacts of climate change on low-income and minority populations who are disproportionately located in high-risk flood and disaster areas. There were many discussions about how to ensure that honest, accurate, and accessible information is made available to the most vulnerable populations so they can make educated decisions about the flood risks they face.

Buras, Louisiana

Participants emphasized that communication and equity are central to the climate change conversation, and especially as this relates to what "risk" means beyond the mere physical impacts of flooding. When the next disaster comes, some vulnerable populations might, for example, flee to "low-risk" flood zones where the physical risk is low, but the existing community may be challenged by issues around race and equity - and may target ethnic minorities with inequitable zoning policies, social hostility, and other forms of exclusion. The challenge is how to adapt to climate change without exacerbating or replicating these historic racial and geographic cultural inequities, and how whole communities can act in a unified manner to communicate risk, build trust, and implement equitable policies in the context of an economically and racially stratified society.

The third convening was held at The Rockefeller Center in Bellagio, Italy. The three-day meeting was self-limited to 25 participants. In addition to individual presentations and dialogue, participants worked in small groups on three conceptual "super-projects" focused on economic transformation, climate migration, and governance structures. As the convening progressed, the super-projects were also organized into three conceptual strategies described as: 1) The "Blue-Green Economy" 2) Climate Mitigation and Resilience Hubs, and 3) Transformational Governance Model.


Bellagio, Italy

The principle outcome of the third convening centered on the need to look at climate change planning through the larger and more transformational lens: the Blue-Green Economy. A pivotal component of this concept is the full range of organizational, economic, and educational support needed to pull it off. While the convening's small focus groups served as formidable tools for ideating these supporting structures, there was limited time to drill down on concrete means and methods. A deeper dive into these issues became a principle focus of the fourth and final convening.


Mississippi river behind Tulane University's ByWater Institute

The fourth Global Transformation Roundtable convening was held at Tulane University's ByWater Institute, located on the Mississippi Riverfront in New Orleans. The convening focused on reconnecting local knowledge and context with larger best practices that could provide support for the Blue-Green Economy and its two companion concepts: Climate Mitigation and Resilience Hubs, and a Transformative Governance Model, as outlined in the Bellagio convening. Participants acknowledged that significant resources are currently available for deployment of the Blue-Green Economy concept. For example, billions of dollars are already coming to Louisiana for coastal restoration, water and watershed management, and climate adaptation, including $1.2 billion in Federal disaster funds; $500 million annually from the Deepwater Horizon Oil Drilling Disaster (ending in 2032); ~$200 million annually from the Gulf of Mexico Energy Security Act of 2006 (GOMESA), and $250 million for green infrastructure in Orleans Parish. These resources present an opportunity to build economic power for local residents, decrease our dependence on extractive economies, and shift to regenerative economies through the creation of more small Blue-Green business opportunities and living-wage Blue-Green jobs for Louisiana residents, especially populations who have been disproportionately affected by climate change and other historical harms.

In summary, the fourth convening cast light on a nascent Blue-Green Economy that already exists in Louisiana, albeit with limited and largely ineffective coordination and organization. Despite billions of dollars in scattered resources and a small army of dedicated practitioners that are in many ways already aligned with supportive climate change goals and outcomes, there remain many messy details that must be resolved in order to create a collaborative and systemic infrastructure that can leverage these resources in a way that produces the transformational changes needed to address a future fraught with increasingly complex and potentially catastrophic challenges.

FINDINGS

The end game of the Global Transformation Roundtable was to engage with a diverse group of local, regional, national, and global stakeholders to co-design a plan for adapting to uncertain futures with equity and advocacy as central considerations. To tackle these issues, three explicit goals were established for the project. Following is a brief summary of our findings:

1. DEVELOP FORESIGHT BY UNDERSTANDING THE MAJOR EXISTING AND EMERGING CHALLENGES TO ENHANCING LIVELIHOODS AND WELL-BEING DUE TO CLIMATE CHANGE.

- There is a general lack of understanding about the order and continually evolving magnitude of threats, hazards, and risks associated with climate change. When armed with trustworthy information, communities and networks can be empowered to make more informed decisions about their future quality of life.

- There is a need for more breadth and depth in data collection and management, especially for the development of a deeper and more systemic approach to planning and development, enhancing trust in local governments, measuring social impacts of disasters and monitoring how genuine issues around race and income intersect with all the above.

- Because of its vast low-lying coastal and riverine topographies and socio-economically diverse population, Louisiana exists at the epicenter of knowledge about these existential challenges, and also the mechanisms needed to address them. Many of these resources exist in organizational silos with specific missions and goals that are not adequately aligned to leverage the available personal and financial resources needed to address transformational change at scale.

2. IDENTIFY SOLUTIONS TO THE MOST PRESSING ADAPTATION QUESTIONS IN A WAY THAT MAKES THE RESEARCH USEFUL TO AT-RISK COMMUNITIES.

- A lack of trust from residents towards government and institutions is a critical issue that must be addressed through more successful strategies for authentically engaging stakeholders. Governmental leadership is not enough. We must find more effective ways to cultivate a stronger sense of togetherness and to create networks of support. There is compelling new research on how to engage community stakeholders in a way where everybody wins. For example, two researchers at Stanford University's Global Project Center have identified five practices that offer a way for organizations to unleash the profound breakthroughs needed to tackle pressing social and economic challenges.

- Honest, accurate, and accessible information must be made readily available so that the most vulnerable populations can make educated decisions about the flood risks and other hazards they face. Recognizing existing inequities, and going to where residents live, work, and play is a strong step in the right direction.

- Complex challenges require systemic solutions. An investment in complementary research that seeks to understand how the impending physical transformations also affect the many cultural, social, economic, organizational, and educational needs of coastal residents is urgently needed, especially for low-income and ethnic minority populations, who are disproportionately located

in high-risk flood and disaster areas. In his book, Systems theorist Fritjof Capra observes: "As the twenty-first century unfolds, it is becoming more and more evident that the major problems of our time – energy, the environment, climate change, food security, financial security – cannot be understood in isolation. There are solutions to the major problems of our time; some of them even simple. But they require a radical shift in our perceptions, our thinking, our values. Unfortunately, this realization has not yet dawned on most of our political leaders, who are unable to "connect the dots," to use a popular phrase. They fail to see how the major problems of our time are all interrelated. Moreover, they refuse to recognize how their so-called solutions affect future generations. From the systemic point of view, the only viable solutions are those that are sustainable." (Preface; A Systems View of Life; Fritjof Capra; 2014; Cambridge University Press.)

- The question of how to pay for resilience and adaptation programs and projects has been a major roadblock to successful implementation, both within and outside of the state of Louisiana. Considerations of equity in financing resilience and adaptation add another layer of complexity to these challenges. Existing financial tools must now be adjusted to help in relevant ways, while creative new policies and funding mechanisms must also be created to address the gaps not filled by these existing funding streams.

3. CREATE STRATEGIES FOR COMMUNITY-BASED RESPONSES TO THE IMPACTS OF CLIMATE CHANGE.

The world is already too late in preventing greater flood risk in the future. The consequences can now be measured in unnecessary loss of life, damaged and destroyed communities, and diminished economic prosperity. Unless abated, these challenges will continue to persist and multiply over time. Solutions must include interrelated strategies that exist across a full range of physical, cultural, social, economic, organizational, and educational impacts and stressors:

- **Physical Strategies:** The people of Louisiana and around the world deserve to live in responsible, sustainable communities of opportunity, in balance with the natural environment, and with agency and increased dignity. A future with increased risk will offer new opportunities for some to stay where they are and force managed retreat and resettlement for others. These two strategies must be acknowledged and available for everyone.

- **Cultural Strategies:** Cultivate ways to support the patterns, products, and rituals that bind communities and individuals together and create networks of support during difficult times. These include many kinds of multi-ethnic celebrations tied to the land and community folkways. Problems seem less daunting when everyone is working together towards the same goal.

- **Social Strategies:** The state's lowest-lying communities are currently losing population while higher-ground areas—those naturally better protected from coastal floods—are gaining population. Most low-lying communities have experienced parallel declines in median household incomes and increases in poverty rates. In short, those who move are often those with the financial means and social networks to do so, while in many cases, lower-income populations—those most vulnerable to severe impacts when disasters occur—remain behind and in locations more prone to significant flood risks. This effect carries consequences including contracting tax bases and fewer available resources for social services and infrastructure investments. Existing tax codes and social support programs must now be updated to support these changing conditions.

- **Economic Strategies:** As populations shift towards higher ground, coastal parishes relying on immovable natural resources and infrastructure for their economic benefits may increasingly become commuter parishes, impacting social networks and demand for goods and services. As coastal lands disappear, supply chains and transportation patterns will also be disrupted, resulting in necessary adjustments being made to the network. The changing environment impacts every aspect and function of its society, which adaptation and resettlement plans must find ways to address.

  A new transition fund will be needed to provide support for those who wish to move from high-risk areas to lower-risk areas. Investments in these new "resilience hubs" can create economic development zones in existing high-ground places that are anticipated to grow. Determining appropriate funding and compensation associated with resettlement in ways that supplement traditional cost-benefit-analysis calculations might also include a flexible valuation tool, called a "Resettlement and Community Benefits Agreement," to address quality of life issues that must be integrated into managed retreat support services. A Community Development Finance Initiative (CDFI-like) instrument and/or institution can also be used to create funding for climate and water resilience as well as social impact investments.

  There is also a more positive opportunity to address economic development through the lens of climate change and other impending hazards. Having experienced and recovered from more water-related disasters than many other places in the world, Louisiana is also in a position to build a workforce that can export its hard-won expertise in adaptation, water management, and disaster recovery to communities throughout the nation and around the world. Local jobs and expertise in fields like planning, design, engineering, fabrication, construction, and a wide range of consulting services in innovations for reducing risk can be created and expanded. This new Blue-Green Economy can attract companies to recognize Louisiana as a "testing ground" for innovation and entrepreneurship in these sectors. The development of this new Blue-Green Economy within Louisiana can, and must also serve as a prototype for replication around the world-- to support the proactive mitigation of climate change consequences, while also improving resilience, sustainability, Blue-Green market advantages, job opportunities, and health and human security for all.

- **Organizational Strategies:** The state government cannot, by itself define what a holistic resettlement plan should be. Each community has different skills, needs, and values. These qualities must be recognized, leveraged, and celebrated. The people most qualified to inform the benefit of intangible values are the communities themselves – with support from technical experts. Another critical outcome will be to reduce economic disparities among Louisiana's population, expanding environmental entrepreneurship and full employment to build community and power across all lines of race, gender, and geography. To achieve this outcome, convening participants recommended the creation of a statewide Office of Environmental Economic Development and Opportunity.

  The simultaneous analysis of climate impacts by the Global Transformation Roundtable and LA SAFE, along with community training led by the Foundation for Louisiana has resulted in a more educated and connected public. Each process has contributed to the identification of the individuals, organizations, and institutions doing this important work. The asset mapping of these climate partners also helps to document where and what work is being done. Additional work must now proceed to expand this knowledge and the vital resources these climate partners contain with respect to community advocacy and engagement.

- **Educational Strategies:** Most Louisiana citizens are generally aware that they live in an especially flood-prone state. However, general awareness should not be confused with education. There is no consistent curriculum outlining Louisiana's coastal condition or broader flood risk profile. More alarmingly, there is no effort for educating the public on the relative benefits—and limitations—of risk reduction and restoration efforts, or on the ways to more effectively manage water and its many challenges and benefits. Through education, Louisiana's citizens can develop a better understanding of what happens in areas susceptible to severe, repetitive disaster events and especially how lower-income, and often underserved, populations are disproportionately impacted by these events. As sea level data is revised (usually upwards), local residents must also be made aware that former plans for risk abatement may no longer be viable. An educated and engaged public can become an interconnected network of community-based groups that support real-time watershed management across parish boundaries and resist risk-prone development proposals in high-risk areas.

THREE BIG IDEAS

At the end of the day, there are three big ideas that encapsulate many of the challenges, solutions, and strategies discussed in the various roundtable convenings. First is the need for a more open and authentic process for engaging stakeholders. Second is the need for a more systemic means of problem solving. Third is the need for a more ecological way of thinking about our work, jobs, and systems of remuneration. But how will we know when we are on the right track?

We will know we are on the right track with **transformative stakeholder engagement** when planners and governments are no longer sending out invites to community meetings and blaming the community when only small numbers of people show up. As with all other market-driven enterprises, the entity responsible for engaging must acknowledge when a process is not authentic, trustworthy, or interesting enough to fill the room with willing and active participants. And the outcomes generated must be evaluated not on whether people filled out the appropriate forms, but instead on how the real work of moving the community's shared goals and objectives forward got done as a part of process. In short, it's about whether the principles of democracy were honored and the challenges were significantly resolved, as evaluated by the public we are meant to serve.

We will know we are on the right track with **transformative systems thinking** when we can see a mindset from government agencies, non-governmental organizations, and the public in general that measures success by accounting for how many times an investment can be leveraged to produce a multiple of outcomes. No longer can we settle for agencies and organizations that put their individual politics above the politics of the common good. The new normal for success must be accounted for through a process where the whole can be shown to be better or stronger than simply the total of its parts.

We will know we are on the right track with a **transformative economic mindset** when we are free to measure the success of our economic system more comprehensively -- including a healthy balance among a full spectrum of interdependent financial, human, naturalistic, and all other ecological returns. A longer and more harmonious approach to employment, perhaps around a new Blue-Green economic reality, will result in the most beneficial and sustainable economic outcomes for all present and future generations.

3 CONVENINGS

The four Global Transformation Roundtable convenings were designed to engage a diverse cross-section of stakeholders, including local knowhow from some who participated in the LA SAFE project, additional local practitioners and residents, and experts in climate change planning from across the country and around the world. The convenings were organized to address three explicit goals initially established for the project: 1) Develop foresight by understanding the major existing and emerging **challenges** to enhancing livelihoods and well-being due to climate change; 2) identify **solutions** to the most pressing adaptation questions in a way that makes the research useful to at-risk communities, and 3) create **strategies** for community-based responses to the impacts of climate change.

CONVENING ONE

July 6-7, 2017 | New Orleans, Louisiana

Convening One Themes

- Research integrated with community engagement
- Social and cultural needs of coastal residents
- Equitable resources

The first convening's primary objective was to focus on the Louisiana Strategic Adaptations for Future Environments (LA SAFE) project, a comprehensive planning effort funded by the US Department of Housing and Urban Development, to address community resilience holistically – integrating risk planning with planning for stormwater management, housing, transportation, economic development, education, recreation, and culture in six coastal Louisiana parishes. At the time of the convening the LA SAFE project was in the early stages of development. Participants were selected based on their expertise in six (physical, cultural, social, economic, organizational, and educational) planning domains with one locally-based expert and one national or global expert invited to represent each domain.

The group started by building a common vocabulary. It defined community transformation as a participatory and inclusive process that focuses on improving livelihoods and wellbeing. To be successful, community transformation must share power between governments and many different stakeholders, particularly those who have often been marginalized from more traditional decision-making processes. When implemented authentically, the process of transformation can empower stakeholders to design and implement policies, programs, and projects that simultaneously reduce environmental risk and address underlying stressors that are detrimental to public health. From this common understanding, participants explored four underlying questions related to the three overall roundtable objectives.

Question One: What are the strengths and weaknesses of the LA SAFE project?

- One weakness of the LA SAFE project is that it is focused on six independent governmental jurisdictions. Finding opportunities for cross-parish collaboration, for example, perhaps around watersheds in addition to political boundaries, could help create economies of scale and coordination of efforts based on ecological landscapes rather than political and administrative boundaries.

- Louisiana's Coastal Protection and Restoration Authority's (CPRA) Master Plan is required to be updated every five years. One weakness of the current CPRA plan is its narrow focus on the physical parameters of climate change. As LA SAFE develops rigor for analyzing the socio-economic impacts of coastal change, there are opportunities to incorporate these processes and methodologies into the Coastal Master Plan in ways that can lead to more holistic solutions, with community needs at the center of the discussion around adaptation and planning.

- One potential weakness of the LA SAFE plan is that all of the six parishes have the same relative level of income, as compared with other coastal areas in Louisiana that are also experiencing the impacts of climate change. However, Louisiana's relatively low level of income - and higher income inequality - also provides opportunities to study certain relationships between climate change and economics, like how similar communities of interest can work together in addressing climate change and systemic barriers to economic prosperity.

Question Two: Local Opportunities and Challenges Posed by LA SAFE

- A participatory approach to planning, as in the LA SAFE project, can help build political will to address threats from climate change, while also engaging those marginalized communities who often face the highest risks, but have the least capacity to respond to those risks.

- A participatory approach to the LA SAFE project can also help build local capacity by engaging people who are not usually a part of the planning process in both thinking about and planning for their own futures, as well as becoming more involved in the implementation of the project. Place-based solutions that reflect the local context have an easier time building political will and support because they build social capital and strengthen local capacity. Although it may take longer on the front end than top-down decision-making, a co-design approach more aptly embodies the value of garnering public buy-in early on, rather than risk unfortunate flare-ups down the road.

- By addressing not only environmental challenges, but also the underlying economic, social, cultural, organizational, and educational stressors that affect individual livelihoods and community well-being, the LA SAFE project can lead to value-added solutions for mitigating environmental risk. Through more integrated and systemic planning, the whole can often be greater than the sum of its parts.

- Several local challenges facing the LA SAFE project need to be overcome in order to succeed in implementing a co-designed vision that promotes individual and community health and wellbeing. First among these is the lack of financial resources to fully implement projects and parish plans. This financial gap is not only a Louisiana problem. The United Nations Environment Programme 2016 Annual Report estimated that adaptation will likely cost developing countries between $140 billion to $300 billion annually by 2030, and increase to $280 billion to $500 billion annually by 2050. The lack of readily available public dollars underscores the urgent need to identify innovative and unique financing options from multiple sectors of society to deliver on the promise of community transformation.

- In the current political climate, and with a longstanding dependence on fossil fuel industries, there is also resistance to climate change science and climate risk mitigation at the local, parish, and state levels of government. Perverse incentives exist at local levels in particular to maintain the status quo. Unfortunately, these only increase in more at-risk areas. Acknowledging the serious risks presented by phenomena such as subsidence, sea-level rise, or changing weather patterns puts the tax base of local governments at risk as residents may choose to relocate to safer areas. If parishes take action to protect residents from increasing risks, they may drive those same residents out altogether by raising their perception of risk. And so, these local politics of land use and land ownership deepen the political challenges facing policies to incentivize community transformation.

- Lack of coordination between state government agencies is a lost opportunity to align regular government spending with the State's own assessment of risk laid out in the CPRA Master Plan. As a result, state agencies may be using resources such as highway funding, capital improvement projects, capital outlay projects, or building public schools, for example, in ways that do not reflect expected population shifts, to move away from risk. The current lack of state-level coordination has the potential to lead to duplicative, incongruent, or even conflicting efforts for those agencies that are working on coastal and climate adaptation and risk mitigation.

- Another potential challenge for the LA SAFE project is that it may be setting high expectations for coastal residents and participants in the innovative co-design process, only to find that there is not available funding for a majority of projects or programs. A good design process with no follow-through runs the risk of discouraging communities from participating in future endeavors and can erode trust between residents and government.

- Finally, the LA SAFE project would benefit in multiple ways from developing a rigorous methodology to evaluate project proposals that emerged. First, it would allow for prioritization of proposals separate from purely political means. This has important and long-lasting impacts on equity, as structural barriers can keep the most vulnerable individuals and communities removed from the political process. Additionally, developing such a methodology may allow for better integration of LA SAFE programs into future iterations of the CPRA Master Plan.

Question Three: National and International Opportunities and Challenges Posed by LA Safe

- Participants identified several ways in which the LA SAFE project can help inform community transformation at the national and/or global level. One example is identifying instances of meaningful intergovernmental collaboration and working to understand what was effective in these cases. Because community transformation involves action at the local level in response to regional, state, national, and even global drivers of change, collaboration between scales is essential. As exhibited by the six-parish geography of the LA SAFE project, a regional approach may be most effective in addressing some types of challenges.

- There are opportunities to develop toolkits that local, regional, and global communities can use to initiate stakeholder-driven co-design processes based on the outcomes of the LA SAFE project. Toolkits and trainings can help decisionmakers implement more holistic approaches to adaptation that consider not only the physical characteristics of risk mitigation, but also the underlying social, economic, educational, organizational, and cultural risks and stressors. Such toolkits could demonstrate the benefits that holistic approaches provide to communities in addition to outlining processes for co-design.

- There is a vital need to bring business owners into the planning process, as local businesses often carry significant risk in communities. Exploring effective methods to engage the business community, and identifying and carrying out research that would help clarify the opportunities arising from private sector participation in planning could help diversify the actors involved in the co-design process and produce more balanced and effective outcomes. Building strong public-private partnerships could also help bring the private sector more fully into the conversation and help foster new approaches to adaptation. For example, innovation marketplaces seeded by government funding could introduce new technologies and ideas to stimulate community transformation. Given the enormous challenges that climate change presents to coastal regions, identifying new heterogeneous approaches to engaging all sectors of society is vital to successful community transformation.

- While opportunities exist to build global capacity for community transformation, difficult challenges remain. Many of these exist in the organizational domain of planning. Institutional myopia, or shortsightedness, has long been identified as a problem in business and governmental institutions everywhere. Decisionmakers, forced to operate in conditions of uncertainty, prioritize the near future because they can more likely predict what will happen sooner as opposed to the more distant future. This can create situations where rational decisions may be beneficial in the short term but have the potential to cause harm in the long term. Large institutions and businesses are especially resistant to change due to their very nature. The durability of such bodies creates an order that is fully rooted in the status quo, due in part to the conditions through which each institution derives and holds on to power and influence.

- Continued research into predicting the long-range impacts of climate change, and education and outreach programs aimed at changing public perception of risk may help shift organizational and institutional responses to uncertainty and create pressure to address these long-term challenges. A culture change precipitated by changing perceptions of risk may disrupt the status quo enough to galvanize organizations and institutions to respond to climate drivers or risk losing their power and influence.

- Several lines of research could help broaden the understanding of community transformation. The State has invested heavily in ongoing research, led by The Water Institute for the Gulf (TWIG) and the Coastal Protection and Restoration Authority (CPRA), that seeks to understand how the coast is physically transforming and attempts to predict how it will change in the future in order to inform planning efforts and decisions. An investment in complementary research that seeks to understand how physical transformation affects the social and cultural needs of coastal residents, as well as the effectiveness of different kinds of approaches to address those needs, would help inform the dialogue. Such research could help decisionmakers and stakeholders alike to plan and prepare for environmental change.

- Identifying indicators of successful community transformation in ways that can help make the economic case for investment in these transformations is challenging, particularly for those aspects of planning domains that do not have a direct monetary value. The resilience research has not yet identified good metrics to assign value to intangible benefits, such as maintaining cultural connection and social networks, for example, or the mental health benefits from reducing known risks of the impacts of climate change. The question of valuation is complicated by the fact that value can be subjective, varying from individual to individual and community to community. Universal indicators of community wellbeing could be useful in making comparisons, but may impose a level of standardization that disguises other important aspects of resilience in individual communities.

- There are staggering costs associated with preparing coastal regions for future environmental change, and developing tools to justify those costs as well as tools to measure the success of investments in community transformation will be essential next steps.

Question Four: Transferring Knowledge between LA SAFE and other Community Transformation Efforts.

- Given the enormous task that coastal regions face in responding to the predicted impacts of climate change, there need to be better mechanisms to share experiences, successes, and lessons learned between different regions and between decisionmakers and stakeholders at different levels of governance.

- Building on the identified opportunity for increased collaboration between government entities, it will be important to inform and educate multiple levels of government on the work of LA SAFE and to embed the project's operations into government at all levels. Coastal region risk managers could build relationships between different levels of government to enable future opportunities for collaboration, planning, and investment by strategically engaging government officials to help solicit buy-in for the LA SAFE process and goals. Partnering with academic institutions to study the outcomes of LA SAFE could also contribute to the continuous improvement of the model and help spread the best practices and lessons learned from LA SAFE to other sectors and regions. Additionally, academics could seek opportunities to co-author articles with the project leaders of LA SAFE to help resolve knowledge gaps identified through the process and improve the general understanding of successful community transformation.

- Opportunities to share knowledge and experience at the grassroots decision-making levels are equally important to building a common base of knowledge for community transformation. Stakeholders can share narratives of their experiences, including cross-regional gatherings and storytelling through song, video, websites, or other new technologies such as virtual reality.

- An additional line of research should include working with communities to develop indicators for healthy communities in Louisiana and elsewhere. This work could complement the efforts of the LA SAFE project by providing metrics upon which allocation of implementation resources could be based. Such research could not only help decisionmakers prioritize scarce resources but could also be an educational tool through which communities could raise their own awareness of potential risks and possible opportunities.

- A systemic review or survey of policies and programs that have been successful in transforming communities in a single versus in multiple planning domains could be another valuable tool to help inform ongoing work in Louisiana and elsewhere. Such work could also be the first step in developing guidelines for best practices in community transformation.

- Further research is also needed on possible sustainable public and private financing scenarios. The question of how to pay for resilience and adaptation programs and projects has long been one of the major roadblocks to successful implementation, both within and outside of Louisiana. Considerations of equity in financing resilience and adaptation add another layer of complexity to this type of research, but understanding how to address pre-existing legal and structural barriers that may impede the access of some groups to such financing is important to achieving whole community transformation.

- Academic or government research into the above questions can complement and be informed by continued engagement with affected communities. One suggestion for continued community engagement is to work with communities to visualize futures in

different action-scenarios to help communicate both the future risks and opportunities. Such scenarios might include various levels of completion of the CPRA's Master Plan and a no-action scenario. Visualizations could include desired policy outcomes, such as a focus on equity and how to achieve it in fortifying outcomes for sending and receiving communities. The organization or entity leading visualization efforts should work closely with traditionally marginalized groups to help bolster a diversity of perspectives and needs. Such visualizations could be part of a longer-term effort to change the on-the-ground conversation around climate-related risk and enhance public awareness and support for risk mitigation programs like LA SAFE.

Convening One Strategies & Actions

- Work with communities to visualize futures in action-scenarios
- Systemic review of transformative policies with guidelines
- Develop indicators for healthy communities
- Research in equitable and sustainable scenarios for public and private financing

Summary of findings for Convening One

In this first convening, the LA SAFE project provided a robust real world, project-based catalyst for many of the contextual issues and parameters that would be explored in greater depth in the second convening. To address these issues more specifically and locally, the group of participants was expanded to include more homegrown experts, whose insights and experiences would broaden the investigation in more substantive and meaningful ways.

CONVENING TWO

March 14-15, 2018 | Buras, Louisiana

Convening Two Themes

- Understanding equity in planning to promote climate justice and equitable adaptation
- Planning and financial support for climate refugee regions
- Participatory planning: the community as the expert
- Multicultural risk and communication techniques
- Passion/power mapping for unified climate change adaptation
- Flexible/adaptable climate change policy guided by indigenous wisdom
- Social investment in all sectors to foster citizen empowerment

The second convening was held in Buras, Louisiana. Included were planners and other professionals involved in the LA SAFE project, some local stakeholders most immediately impacted by the vulnerable geography of coastal Louisiana, and international experts from Denmark, Vietnam, and Argentina.

Cajun Encounters, Buras, Louisiana

The objectives of this roundtable were threefold: 1) To understand ways in which the ongoing work to mitigate risk and increase resilience in coastal Louisiana could help inform the broader global conversation around holistic community transformation, catalyzed by environmental change; 2) to use the expertise of national and global experts in climate resilience and adaptation to help advise and improve the LA SAFE project; and 3) to better understand how to break down silos and foster better policy, planning, and implementation across multiple sectors of government, nonprofits, and private entities.

Representatives from three of The Rockefeller Foundation's "100 Resilient Cities" sites shared their experience and perspectives with the group.

Da Nang, a large city on the coast of Vietnam, had four goals: be a peaceful city, a dynamic city, a more connected city, and one that is prepared to recover from disasters. They designed and built resilient houses for low-income residents. They were designed to help mitigate wind damage and were built two stories tall to allow residents an escape from flooding within their own home. They also formed a river basin organization that coordinates actions across government and provincial boundaries to provide a more holistic approach to flood preparation. They are also currently attempting to relocate populations to higher ground. (http://www.100resilientcities.org/strategies/da-nang/)

Santa Fe, Argentina, which sits between two rivers, experienced a devastating flood in 2003. Residents' safety was identified as a primary focus—safety from both flood risk and crime. Incorporating the outer areas into the city to create a more unified force against those safety issues has been a challenge for this region. Additionally, litter and debris pose challenges to their drainage systems, which the city is trying to curb by developing greater city pride. The greater difficulty, however, is how to communicate to residents the impending threats of climate change when most people have more immediate worries to address. (https://100resilientcities.org/cities/santa-fe/)

Vejle, Denmark is a city with a growing wealth gap as the low-income population grows with immigration. In contrast to Louisiana's context, the high-income population resides closer to the water, putting them at higher flood risk. Vejle is now tasked with finding creative strategies to communicate risk with hope and not just fear. One strategy utilizes a VR (virtual reality) experience to communicate possible flood risk. They also discussed the city's "community councils," in which each community is invited to participate. The councils are given direct access to politicians and a small fund to catalyze connections and to assist with further fundraising. (https://www.100resilientcities.org/cities/vejle/)

Another session of this convening opened with a discussion about the effects of existing inequities in risk response, facilitated by president and CEO of the Foundation for Louisiana, Flozell Daniels, Jr. This helped frame topics around equitable solutions. In the first activity, participants were asked how we might address inequities related to acute disasters, such as hurricanes, and chronic stressors, such as sea level rise, population shifts, and increasing flood insurance costs. They were asked to discuss these topics in relation to different planning categories, sectors, and governmental scale. The categories were Education, Economy and Jobs; Housing and Development; Transportation; Public Health; Culture and Recreation; and Stormwater Management.

Participants described the need for honest and clear communication, citing a lack of trust from residents towards the government as a major issue to address. One suggestion was to cultivate "local heroes," or trusted residents that can act as mediators between the government and citizens, helping to engage the local community on a more regular basis. Attendees also discussed the impact of climate change on low-income, minority populations who are disproportionately located in high-risk flood and disaster areas. There were multiple calls to ensure that honest, accurate, and accessible information be made available so that the most vulnerable populations can make educated decisions about the flood risks they face. Below is a summary of what attendees said within each planning category:

Education, Economy, and Jobs:

- Attendees discussed the importance of educating the public on the risks of weather and natural disasters. One group prioritized education as a means of strengthening personal agency. They suggested that the more informed residents are about potential storm risks, the more they will be able to make smart decisions when the storms eventually arrive. Requiring environmental education courses in schools was one of the solutions suggested.

- Attendees also discussed how economic security intersects with risk vulnerability. Those with lower incomes are often disproportionately affected by acute disasters, and they may be unable to afford the costs of evacuating or the price to protect and insure their homes.

- They discussed the ways natural disasters impact populations aside from physical harm or damage, including loss of jobs and income, evacuating to areas where they feel unwelcome, and mental and emotional stress.

Housing and Development:

- Attendees discussed homes in high flood risk areas. They dissected the extra challenges that low-income and minority residents face. Many of the highest risk areas are home to low-income residents, so they bear the brunt of disaster events.

- Participants pointed out that many of these people cannot afford basic needs like quality food, health services, and insurance. Evacuation incurs temporary housing costs, such as lodging, food, and gas. Alternatively, residents' abilities to return after a disaster was cited as another difficult hurdle.

- Attendees said many low-income residents risk eviction if they are unable to return. Attendees suggested that governments should strengthen renters' rights, NGO's provide financial and homeowner education classes, and government and the private sector build storm-ready, higher-density affordable housing in low-risk areas.

Public Health:

- Many attendees focused on the severe impact disasters can have on people. Disasters are high stress events that can affect both mental and emotional health. Attendees were concerned about how to approach these "hidden" effects on residents, suggesting more thorough documentation of mental and emotional repercussions of storms.

- Participants discussed the need for open access to health facilities and insurance, green space, and healthy homes.

- Attendees focused on the chain reaction that occurs in high-risk areas: the residents that can move, do, which reduces hospitals' patient counts. The hospitals serving high-risk areas close, and then the most vulnerable residents lose access to the healthcare they require.

- On a different sub-topic, one group discussed strategies to address crime. Participants suggested approaching crime through a public health lens, identifying the causes (lack of education, jobs, transportation, and services), starting with the youth.

Transportation:

- Attendees focused on improving evacuation routes and options for residents. Aside from addressing road flooding, attendees wanted evacuation options such as free shuttles to shelters for residents without cars or the ability to evacuate themselves.

- Some groups talked about building more connections from high-risk areas to job opportunities and essential services.

Culture and Recreation:

- Attendees discussed strategies to promote community cohesion and celebrate culture, such as seafood, music, and language. They suggested investing in community spaces to support programs that highlight and promote these community strengths. These spaces can be leveraged to encourage healthy living and physical fitness.

- Participants discussed strategies to put clear value in culture and recreation sectors through policy and programs. They also mentioned the variety of cultures that exist here, including non-English speakers. Participants suggested having translators and translated materials for important documents and services.

Stormwater Management:

- Groups emphasized the importance of clear communication about risk. The communication approach and language should also aim at building trust between residents and outreach organizations.

- Attendees said that smart stormwater regulations should be required for development, but also seemed obliged to emphasize that regulations must also be distributed equitably throughout all zoning and land use planning.

- Attendees cited a general lack of understanding of the threats from storms, subsidence, and climate change as the largest challenge. This has many causes including distrust towards the organizations providing the information, the breadth and complexity of the problem, and apathy about the long-term challenge.

- Attendees agreed that going to where residents live, work, and play talking to them as equals was a strong step in the right direction. They suggested using language that does not sound academic or scientific. Many groups suggested the need for this information to be illustrated visually and to be available at festivals, curated spaces, and other events to make coastal risk more tangible and accessible. Attendees wanted to cultivate a stronger sense of togetherness and to create networks of support outside what the government provides. They said the problem would seem less daunting when everyone is working together towards the same goal.

- Attendees stressed the importance of data that are accurate, updated, comprehensive, and from transparent and trustworthy sources. If armed with good information, communities and networks can make more informed decisions. There were also calls for more breadth and depth in data collection, including systems to measure effective development practices, degree of trust in local governments, the social impacts of disasters, and how race and income intersect with all the above.

- Participants would like to see more innovation in the disaster and coastal adaptation and resilience fields. Louisiana has experienced and recovered from more water-related disasters than any other state. Attendees would like to leverage this reality to create an adaptation, water management, and disaster recovery economy, attracting companies to use Louisiana as the "testing grounds" for these sectors. This can include retrofitting existing buildings to cut costs after disasters and finding more cost-effective solutions for post disaster recovery.

- Attendees would like to see more proactive actions to disasters, as opposed to exclusively reactionary ones.

The final day featured the entire group of attendees participating in two facilitated conversations. Harriet Tregoning, the immediate past Principal Deputy Assistant of Housing and Urban Development, facilitated the first conversation about borders, jurisdictions, and migration. Joyce Coffee, founder and president of Climate Resilience Consulting, facilitated a discussion about implementation and next steps. Both discussions expanded on the themes and topics discussed the previous day. Attendees expressed the desire to continue communication and coordination between governmental and non-governmental organizations, and between different government agencies. The international representatives brought a unique perspective that highlighted some of the inequities that Louisiana and America keep swept under the rug. They also said to focus on the successes and take strength and pride in what everyone has accomplished.

Summary findings of Convening Two

The second convening emphasized that communication and equity are central to the climate change conversation, and especially as this relates to what "risk" means beyond the mere physical impacts of flooding. When the next disaster comes, some minority populations might, for example, flee to "low-risk" flood zones where the existing community may also be challenged by issues around race and equity - and may target the incoming vulnerable demographic with inequitable zoning policies, social hostility, and other forms of exclusion. The challenge is how to adapt to climate change without exacerbating or replicating these historic racial, geographic, and cultural inequities, and how whole communities can act in a unified manner to communicate risk, build trust, and implement equitable policies in the context of an economically and racially stratified society. These issues remained paramount as the agenda was being honed for the third Global Transformation Roundtable convening.

Convening Two Strategies & Actions

- Help identify tools for each community
- Condense data and resources
- Determine each stakeholder's passions and skills
- Connect expertise
- Create a place to convene and empower
- Plan knowing that humans will be resilient and empowered at the neighborhood level
- Intersect with public health to inspire changes small to large
- Prioritize pre-disaster planning to post-disaster funding
- Cultivate "local heroes"

CONVENING THREE

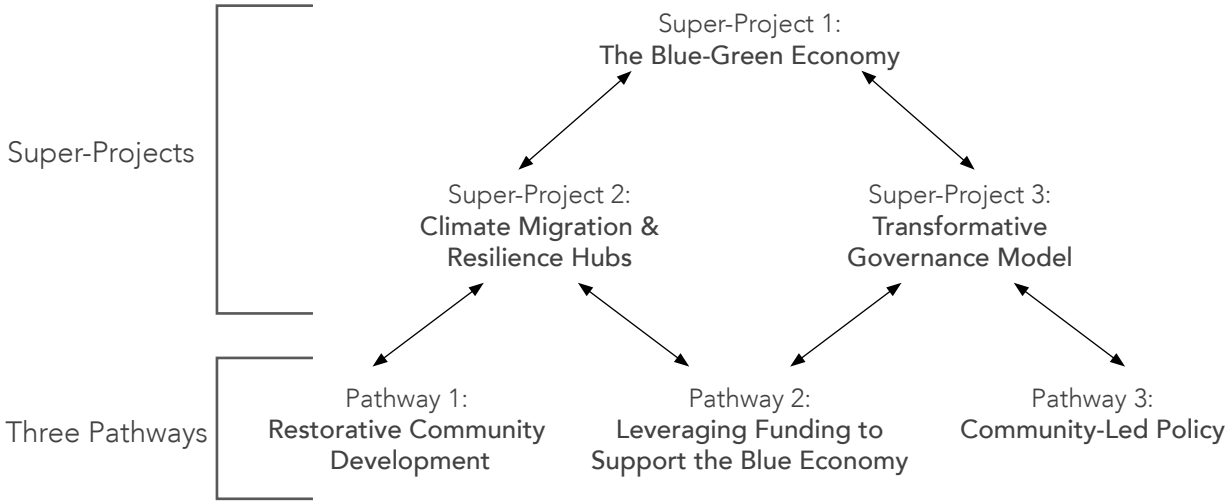
October 14-16, 2018 | Bellagio, Italy

Convening Three Themes

- Blue-Green economy
- Climate migration & resilience hubs
- Transformative governance model
- Leveraging funding to support the Blue-Green Economy
- Restorative community development
- Community-led policy

The third convening was held at The Rockefeller Foundation's Bellagio Center in Bellagio, Italy. Attendees evolved concepts around three "Super-Projects": 1) The Blue-Green Economy, 2) Climate Mitigation & Resilience Hubs, and 3) Transformative Governance Model.

As the convening progressed, the three Super-Projects were organized into a single conceptual framework with economic diversification into the "Blue-Green Economy," which was identified as the overarching goal that the other two Super-Projects can support. On the last day, working groups were reorganized around three "pathways," or sets of actions to support the implementation of the strategies. The three pathways were: 1) Leveraging Funding to Support the Blue-Green Economy, 2) Restorative Community Development, and 3) Community-Led Policies.

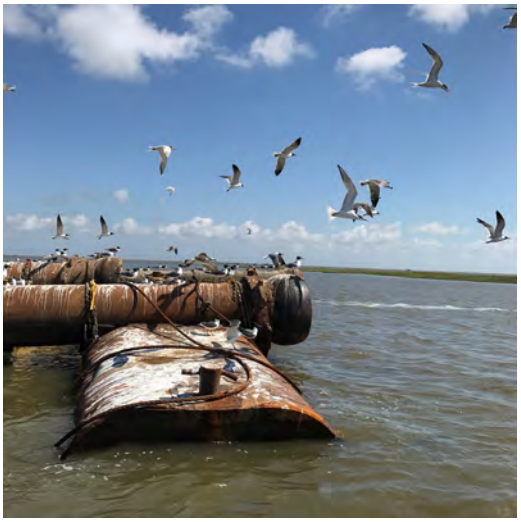


The diagram above shows how the group developed these concepts and pathways and how they relate to one another. The following pages summarize what the group discussed on each of these topics.

Super-Project 1 | Overarching Vision: The Blue-Green Economy

Vision: Act for a more profitable, equitable, resilient tomorrow through the new Louisiana

This vision for the new Louisiana economy centers around a "Blue-Green sector" focused on disaster preparedness, risk reduction, water management, and sustainable energy. It is important to note that these same goals were also articulated in conversations with local residents in the LA SAFE project. This cluster will challenge the region's current dependency on employment in oil and gas businesses by providing jobs in environmental research, design, industrial production, and construction. Akin to Silicon Valley's clustering around computer technology, which was also incubated through government investment, the Blue-Green sector will harness restoration investments to provide jobs and kickstart a self-sustaining economy that provides valuable disaster mitigation and recovery products and services around the world.



First, Louisiana should develop the knowledge, skills, and businesses to capture existing funding for restoration and protection projects. By incubating those business and harnessing outside investment, Louisiana will also build the workforce that can export the same expertise to communities around the world, including fields of planning, design, engineering, fabrication, construction, and consultant services. In the coming decades and centuries, the world will require this expertise. Louisiana's unique position on the frontlines of climate-induced flood risk and experience in managing and recovering from disasters optimally positions the state to create a dynamic economic engine at the epicenter of the global climate adaptation economy.

Since hurricane Katrina in 2005, many of Louisiana's 64 parishes have been subject to a flood-caused major disaster. Historically, these disasters have been tropical surge events. But, in 2016, Louisiana learned how vulnerable it is to intense riverine and flash floods. In the future, the world will become increasingly prone to flood risks of all kinds. Louisiana can harness the power of its citizens' collective experience and resilience to export that expertise to other communities. This will diversify its economy and provide a catalyst for economic growth, creating more prosperity while reducing disaster risk.

The new focus on climate adaptation does not replace the necessity for climate mitigation. However, CPRA's models predict that coastal communities will be more prone to flooding in the future, even in the most optimistic scenario in which the entire $50B Coastal Master Plan is funded and global greenhouse gas emissions are reduced in the coming decades.

The world is already too late in preventing greater flood risk in the future. The consequences will be measured in the unnecessary loss of life, damaged and destroyed communities, and diminished economic prosperity. The Blue-Green Economy will proactively mitigate these

consequences while improving resilience, sustainability, market advantages, job opportunities, and health and human security for all Louisiana citizens.

The cost of not being proactive will reproduce and exacerbate poverty and inequities across the coast. Historically, flood-prone and socially vulnerable communities have disintegrated in the wake of repetitive flood events. A lack of adequate planning, protection, and investment has led to the disbandment of many communities and chronic budget problems in others.

To support the new Blue-Green Economy, Louisiana must not leave behind its coastal citizens who are paying the human cost of subsidence and sea level rise. As residents transition from high-risk areas with decreasing opportunity, they deserve a real choice to relocate, which will require concerted financial support to make the transition to communities with greater opportunity. This will empower those citizens to participate in the economy and reduce the long-term cost for the state and citizens of rebuilding after every disaster in high-risk areas. The state will support the development of flood-resilient communities of tomorrow-- a prototype for other coastal communities around the world-- and in the process, it will empower Louisianans to prosper.

For decades, Louisiana has heavily subsidized the oil and gas industry as the central pillar of its economic development strategy. Over $1 billion in property tax breaks are given to manufacturers every year, the most generous giveaway program in the country. Where in decades past these tax breaks were in exchange for the promise of jobs, now those same tax breaks support modernization and use of robotics that eliminate jobs. "Louisiana shielded [Exxon Mobile] from more than a half-billion dollars in tax payments even as its local payroll was trimmed by almost 1,900 jobs — a cut of more than 40 percent."1 Now, with chronically low oil prices, the state is left with mounting debt, severe reductions to education funding, and a stagnant Gross Domestic Product (GDP). (reference: LA SAFE report)

Residents know that Louisiana must diversify its economy to create more reliable economic prosperity. To that end, Louisiana should reevaluate the criteria for which businesses deserve state subsidies. Louisiana should make smarter investments, create targeted incentives, and reallocate subsidies to encourage diversification into the Blue-Green Economy, to entrepreneurs, and to businesses that demonstrate the ability to create lasting jobs and value for Louisiana citizens.

Education funding should be increased, particularly in the STEM fields, so that Louisianans can benefit from the high paying jobs in the Blue-Green Economy; engineering, architecture, planning, business administration, advanced manufacturing, construction, and more. This new economic initiative will be held responsible by a series of checks and balances promoting transparency and accountability to taxpayers.

In parallel, government agencies must align their resources and investments with the prognosis of the Coastal Master Plan, avoiding development in high-risk areas. The state should examine closely how it manages land on a regional scale to support growth in high ground areas, to foster vibrant, equitable communities.

The new Louisiana will design and build new housing and commercial development constructed to withstand the disasters we will face in the future. This transition will require government to become more responsive and coordinated across agencies and with the private, philanthropic, nonprofit, and community-level sectors so that investments are leveraged and aligned with a shared understanding of the rapid changes ahead.

Super-Project 2 | Climate Migration & Resilience Hubs

Vision: The people of Louisiana will live in responsible, sustainable communities of opportunity in balance with the environment, and with agency and increased dignity through migration.

Goal 1: Designate potential growth areas
- Ensure environmental safety
- Make movement a real choice
- Create resilience hubs

Goal 2: Short term: research and planning, designate first pilot community

Goal 3: Medium term: create designs and affordable options, and a land bank to fund the future communities

To support the Blue-Green Economy, a long-term view of the future coastline and flood risk must be integrated into a coordinated plan for economic growth and anticipated migration. Louisiana needs a two-pronged approach to facilitate a just and equitable transition from high-risk areas to future growth centers. The first prong is to create a transition fund that will provide support for those who wish to move from high-risk areas to lower-risk areas. The second is to invest in "resilience hubs" that will be economic development zones in existing high-ground places anticipated to grow. By identifying locales that are high and safe, and have historic building stock in need of redevelopment, the State can invest in these communities, supporting, economic development opportunities, disaster preparedness resources, affordable housing, and other incentives to strengthen these town centers and to provide an attractor for coastal residents who choose to move from high-risk areas. Resilience hubs will be models for sustainable growth and economic opportunity that are developed in balance with the natural environment.

One principle for planning these growth areas pertains to the dignity of residents choosing to relocate. Individual agency must be respected and preserved. The transition fund and resilience hub investment will be designed to provide an attractive option for residents to move to places of greater opportunity. Coastal residents moving to these centers should have a real choice, and that means understanding and addressing the financial constraints and hurdles preventing people from moving, such as getting out from under an upside-down mortgage. Growth in the cities and towns designated as resilience hubs should also be developed compatibly with local ecology, examining flood risk, transportation, local food production, and other ecological constraints and impacts.

In the long term, seven total resilience hubs will be created, one in each Metropolitan Planning Organization (MPO) district, so that investment is distributed throughout the state to cities and towns desirous of investment and a growing tax-base. These communities may need new infrastructure investments to sustain population growth and densification. The economic goal for the resilience hubs and associated transition fund is to create 20,000 new Louisiana jobs in emerging sustainable economies with a 10% increase in average household income (from 2020).

These two programs should be created with strong community and data-driven perspectives. One pathway, described further in the Restorative Community Development pathway, will empower citizens to help design these programs and integrate the values and needs of families in addition to strictly economic considerations. A well-being survey would provide a qualitative layer to inform policies around compensation and resettlement to keep families whole and support them in having a real choice to leave if they choose to. To determine prospective resilience hub locations and characteristics, recommendations from the community will contribute to a comprehensive set of metrics for success. The City Resilience Framework Drivers is a resource which can be a basis for this evaluation and monitoring tool. Detailed mapping and economic analysis will help identify communities that are likely to decline and collapse, as well as those that are likely to successfully grow and thrive. An analysis of existing taxes, programs, and incentives will be necessary to craft the right bundle of opportunities and investments for long-term implementation. This initiative will require fundraising for the seed fund, a study of lessons learned from deindustrialized cities, and a deep dive into socio-political issues in receiving communities to minimize friction and conflict.

To support the long-term goal of a resilience hub in every MPO district, the first step is to announce and pilot the first resilience hub based on one of the already designed LA SAFE projects. During this time, a macro-analysis of demographics, economics, and ecosystem services will inform the capacity of areas to grow, the number of people at risk of displacement, etc. In the medium term, the first pilot will be complete and operational with a multi-sectoral governance structure (see Super-Project 3) that includes leveraged partnerships and an implementation agency with external accountability. During this time, the transition fund will be created and a concerted effort to create sustainable, efficient, and affordable home designs will need to be developed to create affordable housing options. The fund can also support the creation of a resilience land bank and the creation of a governance entity to manage the legal and financing elements, engage residents and stakeholders, and build infrastructure.

Super-Project 3 | Transformative Governance Model

Vision: A responsive governance structure that realizes vibrant, innovative, and equitable communities and economies able to meet Louisiana's climate challenges and opportunities.

The resilience hub concept is a microcosm of a broader shift in the relationship between Louisiana's people, economy, and environment. Changes will happen fast in cases of disasters and may also be gradual as land continues to subside, sea levels rise, and risk and flood insurance

costs increase. As the environment becomes more unstable, ripple effects will spiral into the social and economic order of our communities. Our current governance structure is not designed to be adaptable or responsive to these changes. Further, the silos in government mean that while some agencies rightly present a future environment with more water, other agencies are investing in the very areas at highest risk. This reveals that these agencies do not communicate or align risk information or resources in an integrated manner. More critically, Louisiana's governance structures are dissociated from people on the ground and the experiences that should inform how adaptation is supported. Central to proposed changes to governance is a commitment to engagement on the local level with residents who are on the front lines of radical change.

The goals of this supporting strategy are to leverage this moment in time to defend Louisiana and its people against climate-induced change, align and leverage public and private resources to advance the vision, and redesign state governance models to introduce and advance democracy.

The goals for a transformative governance model are:

Goal 1: Reshaping Government

- Reshape the mission of State agencies to prepare for adaptation and coastal transformation
- Build capacity within the state (workforce, capital, finance, innovation) to lead the change
- Enhance CPRA board to have broader representation
- Improve government effectiveness to better address challenges and opportunities of coastal and watershed change
- Create a body responsible for reviewing regulatory action, policy, practices, and standards to enable unity of purpose and control access to transformation funds
- Insert aligned components in the Coastal Master Plan to better coordinate agency action
- Reshape GOCA to work across all agencies
- Establish consistent data requirements and risk standards

Goal 2: Aligning Public and Private Resources

- LA SAFE 2.0: ongoing engagement, education, and planning across the coast
- Create new resources and markets for the adaptation economy
- Create incentives and a mechanism to collaborate across sectors
- Make institutions more proactive in addressing social and environmental needs
- Support a team of leaders capable of pushing implementation forward and coordinating public and private activity to support the vision

Three Pathways

Following the conceptual development of the three super-projects, the working groups at Bellagio reorganized around three action pathways that would support the super-project concepts. These pathways unpacked core elements of the previous three proposals and drilled down in more detail.

Pathway 1 | Leveraging Funding to Support The Blue Green Economy

The vision of this pathway is to leverage public and private investment and activities towards adaptation to create good jobs and entrepreneurism that attracts strategic investment to Louisiana.

This pathway proposes financing and governance mechanisms to leverage existing and potential funding directed towards coastal resilience, to achieve a more meaningful and long-lasting economic impact for Louisianans. A Community Development Finance Initiative (CDFI)-like instrument or institution can attract funding for climate and water resilience as well as social impact investments. These investments will be used as leverage to influence and align State funding to the vision for an equitable Blue-Green Economy. This will be a key financing tool to steer Louisiana towards a thriving and self-sustaining economy with a broad long-term climate adaptation constituency and create a welcoming environment for investment and leadership. The fund will be leveraged to build skills in the Louisiana workforce and ensure that it stays within the Louisiana economy, fostering the transformation from desperation and risk towards entrepreneurism, security, and abundance.

The CDFI-like instrument/institution will design, implement, and manage a just and equitable climate transition fund that will attract and coordinate investment in adaptation strategies. This will help Louisiana to be more competitive, to have sustainable support and better community outcomes. The fund will leverage private investment to influence State budgeting and spending goals to have a greater impact. Louisiana is at its best when its entire budget is focused on investing in its people.

Another desired outcome is to close economic disparities among Louisiana's population, achieving full employment and entrepreneurism across race, gender, and geography to build community and power. To achieve this outcome, the group recommended the creation of an Office of Economic Development and Opportunity that will:

- Create and effectively partner to revolutionize workforce development and training
- Direct the Louisiana Department of Economic Development (LED), Workforce, and CPRA to analyze their programs and bring back recommendations that will create transformative resilience across all those offices
- Map and spend equitably across the population of the state
- Fully align State funding and procurement
- Spur the creation of businesses that can capture those projects

The programs and initiatives borne of these financing tools will be designed, carried out, and evaluated through a participatory, inclusive, and transparent process. The full breadth of community should contribute to program design and development.

Pathway 2: Restorative Community Development:

The vision of this pathway is for Louisiana to have a system and a process for just resettlement, called "restorative community development."

The second of the three pathways supports planned resettlement by outlining how transition services could be structured to promote equitable outcomes. This proposal is to create a flexible valuation tool called a "Community Benefits Agreement" that would supplement traditional cost-benefit-analysis calculations, to help determine funding and compensation associated with relocation. This tool is rooted in community engagement. Communities would inform how to value aspects of their quality of life to be integrated into migration support services.

As high-risk homes lose value, homeowners can find themselves trapped with property they cannot afford to sell. A relocation program with fair-market compensation in such a situation will not ensure that those residents could afford to live in safe housing elsewhere, as their property value may be far below the cost of safe housing in areas with greater economic opportunities and social fabric. The burden of maintaining the homes, surrounding infrastructure, education, and other social services may be more expensive to taxpayers and insurance companies in the long term than creating an option for residents to move with agency and dignity to a better situation. Further, the cost of not supporting transition includes the lost opportunities for increasingly isolated residents and communities in high-risk areas to fully contribute to the economy. These impacts will play out in ways that increase the need for State support and create a legacy of poverty and missed opportunity that can ripple down to future generations.

The State cannot define what the holistic resettlement approach should be by itself. Each community will have different skills, needs, and values. The State should develop a Community Benefits Agreement to fill the gap between a straightforward buyout that might be determined by a Benefits Cost Analysis and a truly holistic resettlement plan. The people most qualified to inform the dollar-value benefit of intangible values are the communities themselves, supported by technical experts. Community members will identify the aspects of life that they value that would make them whole in a future place. No one else can dictate that.

The first prototype of this tool will be developed with some of the most vulnerable communities who will benefit from resettlement in the near-term. The State and partners can provide opportunities to build capacity, and provide engineers, economists, and other technical assistance to work with communities to define their own benefits and to determine what an equitable and just buyout program would look like for them.

Pathway 3 | Community-Led Policy

The vision: A people-driven equitable system for managing coastal and water-based risk across the state.

This pathway focuses on a greater degree of community participation in decision-making and a greater degree of coordination across parish boundaries, to plan around watersheds and risk rather than only within parish boundaries. The outcomes of this pathway include an educated and engaged public that has the capacity and support to engage with watershed planning and decision-making, and a State government that works in partnership with communities to ensure that future development is responsible and safe.

An educated and engaged public will become an interconnected network of community-based groups that support watershed management across parish boundaries and resist risk-prone development proposals in high-risk areas. Regional entities will be developed with power in the permitting process to address risk across watersheds. No new development incompatible with a high degree of flood risk should be permitted in high-risk areas. All parishes should develop, codify, and enforce risk-based land use plans.

To support these outcomes, the group recommended the creation of a scorecard around resilience (not insurability), similar to the Community Rating System for all State projects, and tie the score to upcoming funding to create capacity and incentives for governments to manage land and reduce risk. This scorecard will help to tell the story of risk in each area with common language and will inform incentive alignment decisions. The State should utilize and expand the LA SAFE engagement model to create public education and expand capacity for community-led planning and decision-making.

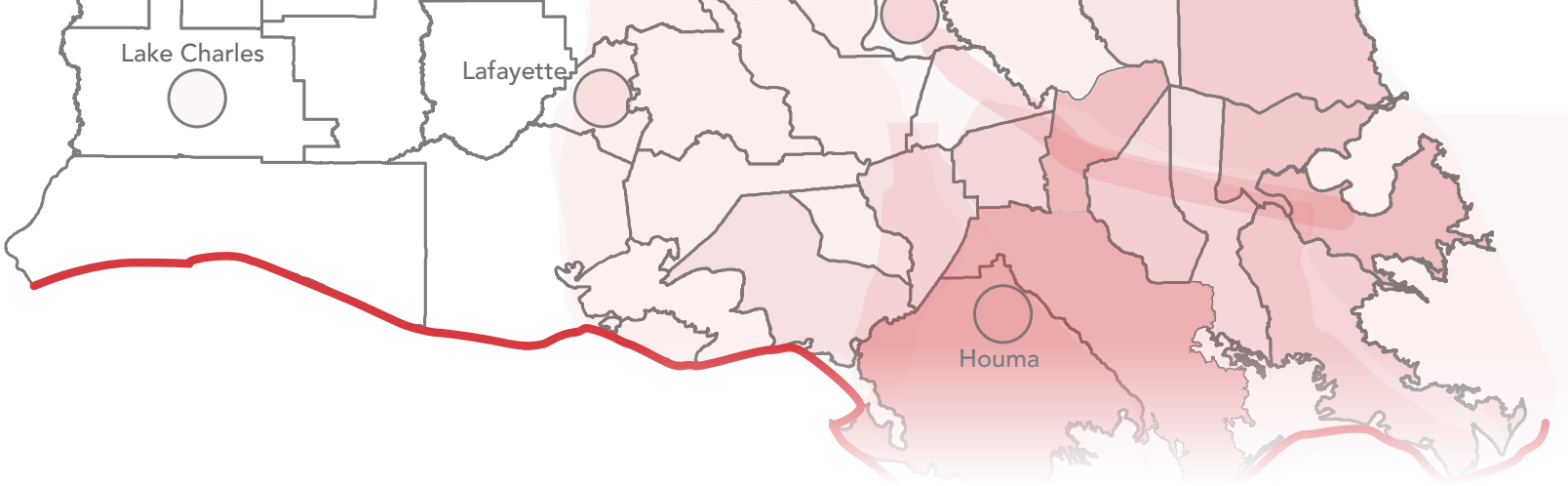
A working group should be established to design an institutional structure that can make comprehensive watershed planning and implementation possible. The purview of the Coastal Master Plan should expand to a statewide approach requiring each State agency to have their own chapter in the Coastal Master Plan. The State should use the implementation process of the ten LA SAFE pilot projects to build the muscle of cooperation and coordination across State agencies, as part of the broader effort to align agency roles and increase coordination. The State should reform the procurement process to support equitable and restorative contracting.

Summary of findings for Convening Three

The principle outcome of the third convening centered on the need to look at climate change planning through the larger and more transformational lens of a Blue-Green Economy. A pivotal component this concept is the full range of organizational, economic and educational support systems needed to pull it off. While the small focus groups served as formidable tools for ideating these supporting structures, there was nevertheless limited time to drill down on concrete means and methods. So a deeper dive into these issues became a principle focus of the fourth and final convening.

Convening Three Strategies & Actions

- Leveraging funding to support the Blue-Green Economy
- Restorative community development
- Community-led policy



CONVENING FOUR

January 9-10, 2020 | New Orleans, Louisiana

Convening Four Themes

- Build on the climate context to create a collective synthesis of pathways developed throughout the GTR process that would lead to a shared understanding, vision, and a commitment to future work
- Surface and share knowledge and best practices for a sustainable and inclusive economy vis-à-vis a shared sense of commitment and understanding that we are all better together
- Connect and enhance local and regional work to leverage resources coming into the state to launch a variety of platforms that honor local knowledge and best practices for sustainable and inclusive economies
- Recognize local and regional networks that will commit to garnering resources coming into the state
- Commit to developing communication practices to shape a collective narrative

The fourth Global Transformation Roundtable convening was held at Tulane University's ByWater Institute, located along the Mississippi Riverfront in New Orleans, Louisiana. The convening focused on reconnecting our local knowledge and context with larger best practices and understandings to support the Blue-Green Economy, Climate Mitigation and Resilience Hubs, and the Transformative Governance Model as outlined in the third GTR convening in Bellagio, Italy.

The convening was preceded by a meeting of local and regional climate change allies to deepen and coordinate their efforts in support of coastal and climate adaptation. The premise of the meeting, which was conducted by the Foundation for Louisiana and the Greater New Orleans Foundation, with additional funding from The Rockefeller Foundation, was an understanding that, though many organizations are working to create pathways for local jobs and business opportunities, a more aggressive coordination and communications plan will be required to adequately support the emerging coastal restoration and water management economy. The outcomes of this meeting provided additional input for the fourth Global Transformation Roundtable convening.

On the first afternoon of the convening, participants were led through a series of conversations by panelists Steven Bingler, founding principal at Concordia, Liz Williams Russell, Climate Justice Program Director at Foundation for Louisiana and Robbie Habans, economist at

The Data Center using the framework of "Our Shared Context" to explore the recent accomplishments and trends in Louisiana's continuing leadership on climate adaptation.

Participants then moved into small groups to share aspects of their expertise and perspectives that bore witness to the challenges and opportunities presented by the need for inclusive, equitable, and sustainable climate adaptation, particularly in coastal areas.

One important element of background for the discussion was that significant resources are already available to support a Blue-Green Economy. For example, billions of dollars are coming to Louisiana for coastal restoration, water and watershed management, and climate adaptation including $1.2 billion in Federal disaster funds, $500 million annually from the Deepwater Horizon Oil Drilling Disaster (ending in 2032), ~$200 million annually from the Gulf of Mexico Energy Security Act of 2006 (GOMESA), and $250M for green infrastructure in Orleans Parish. There is an opportunity to ensure that these and other funds lead to the creation of more living-wage jobs and small business opportunities for all Louisiana residents, especially populations who have been disproportionately affected by climate change and other historical harms. This presents an opportunity to build economic power for local residents, decrease dependence on extractive economies and shift to regenerative economies.

Bradford Davy, Director of Regional Engagement with the Fund for our Economic Future opened the second day of the convening by sharing best practices on adapting and aligning economic development strategies to meet community needs and drive a persistent focus on systemic economic and racial inclusion. As the discussion progressed, participants explored, both as a collective and in small groups, ideas that could afford the opportunity to create an inclusive and sustainable Blue-Green Economy.

One emerging theme moved the discussion more from what the Blue-Green Economy might look like to who might lead the effort and how it might be implemented. To this end Concordia, UNO-CHART, and Foundation for Louisiana staff involved in coastal resilience and adaptation work have, from the outset, emphasized the intrinsic value of connectivity and collaboration across all sectors and geographies – local, state, regional, national, and international. This collaborative approach helps to foster greater knowledge of climate challenges and an understanding that everyone has a role to play in addressing hazard related threats with new and creative solutions.

Prior to the deeply community-centered engagement in the LA SAFE project and the Global Transformation Roundtable convenings, State agencies, municipal and parish leaders, institutions, organizations, and local community members had mostly worked independently. There were a variety of responses and mitigation strategies in play to address the impacts of sea level rise, land subsidence, hurricanes, and sustained rain events. Responses were often reactive and not necessarily informed by current research and best practices. This was especially true at the local community level.

In contrast, the simultaneous climate-impacts planning processes for the Global Transformation Roundtable, LA SAFE, and community training led by the Foundation for Louisiana have resulted in a more educated and connected public. Each process has contributed to the development of a more robust cataloging of organizations and institutions doing this important work. The asset mapping of these climate partners also documents where and what work is being done. A joint analysis of this data illustrates where there are strengths and weaknesses with regards to research, engagement, advocacy, policy and financial investment. Not surprisingly,

engagement, advocacy and research are areas of strength. Policy and financial investment are lacking.

This valuable database needs to be expanded and managed so that it can continue to strengthen human capacity and knowledge and provide opportunities for people to stay informed, find collaborators, and support climate-impacted communities across the state and region. It is people, after all, that will inform and resolve the challenges of climate impacts on their communities, and in order for this effort to be successful, people need to continue working together.

As the convening progressed, participants explored both as a collective and in small groups aspects of the Blue-Green Economy that could afford the opportunity to create an inclusive and sustainable economy.

Pam Jenkins, Research Professor at the University of New Orleans, led participants through diagrams representing data collected in the fall of 2019 by the Foundation for Louisiana and the Greater New Orleans Foundation around the roles that existing organizations across the state were already playing in climate change planning across various sectors. Local and regional allies working to deepen and coordinate efforts to support coastal and climate adaptation contributed the data. Though many organizations are working to create pathways for local jobs and business opportunities, there is inadequate coordination and communication to effectively support an emerging coastal restoration and water management economy.

ORGANIZATIONAL SUPPORT

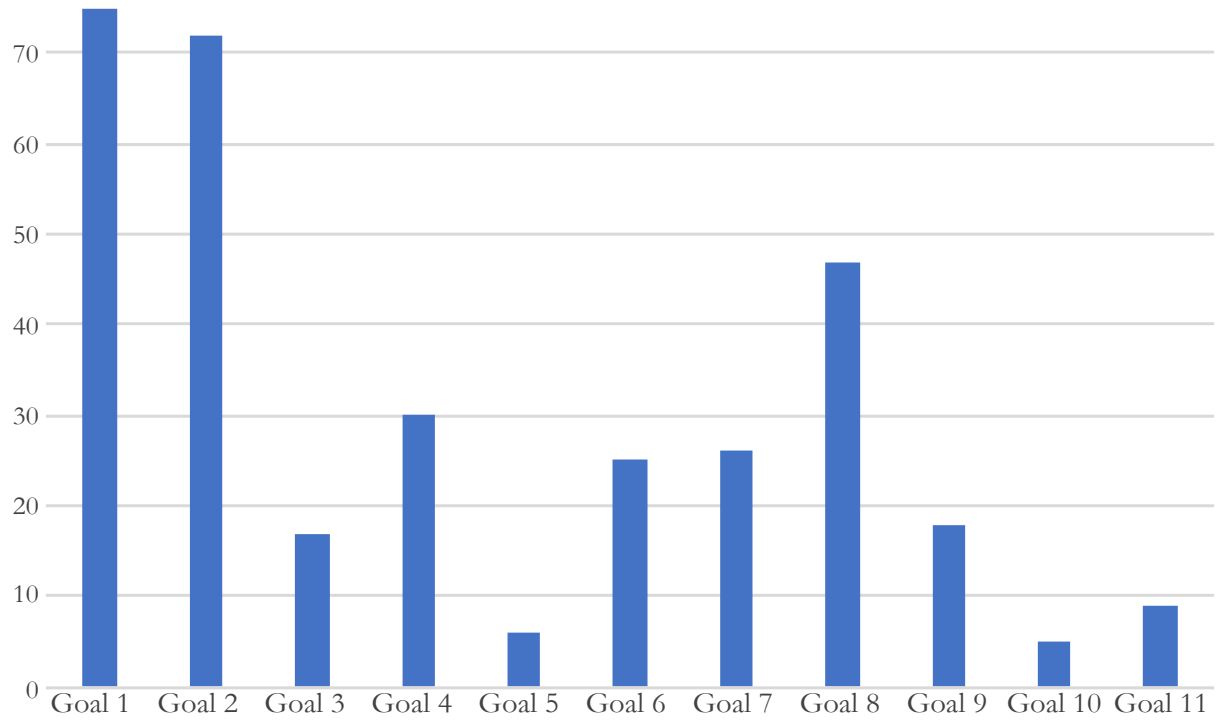
UNO-CHART conducted an inventory of 140 Louisiana organizations working in the climate adaptation field (See Appendix for a list of the organizations). The purpose of this review was to describe, as far as possible, the reach and the focus of the organizations in this field. Through the work of this project, it became apparent that there are silos in the field, not necessarily intentional; but often occurs with focus and geography of each organization's work. We began by collaborating with our partners who provided their lists of organizations with whom they work; this provided the basis for the additional research. Using interviews and website reviews, the researchers determined where each organization fit best into the following Adaptation Goals.

The goals and strategies were initially developed at the Coastal and Climate Adaptation Goals and Coordination Meeting sponsored by the Foundation for Louisiana and Greater New Orleans Foundation (partially funded by Rockefeller Foundation), but then modified throughout the research. Goals 1 and 2 are supported by the most organizations, and goals 5 and 10 are supported by the fewest. Though many organizations are working to create pathways for advocacy, educational prospects and conservation, fewer than 10 organizations dedicate their mission to Goal 5: Housing Affordability, Ownership, and Insurability and Goal 10: Cultural Preservation & Artistic Expression.

ELEVEN ADAPTATION GOALS

Goal 1: **Community Organizing and Advocacy** (including community organizing and policy advocacy)
Goal 2: **Public Education and Awareness** (including K - 12)
Goal 3: **Stormwater Management & Green Stormwater Infrastructure** (including planning and implementation)
Goal 4: **Land Use, Land Sovereignty, Zoning, & Watershed Planning** (including planning and implementation)
Goal 5: **Housing Affordability, Ownership, and Insurability**
Goal 6: **Workforce & Small Business Development**
Goal 7: **Environmental Justice & Industrial/Utilities Oversight**
Goal 8: **Coastal Restoration, Estuarine Health, & Conservation/Preservation**
Goal 9: **Phases of Disaster** (e.g. Disaster Prep & Recovery, Community Resilience)
Goal 10: **Cultural Preservation & Artistic Expression**
Goal 11: **Climate Change**

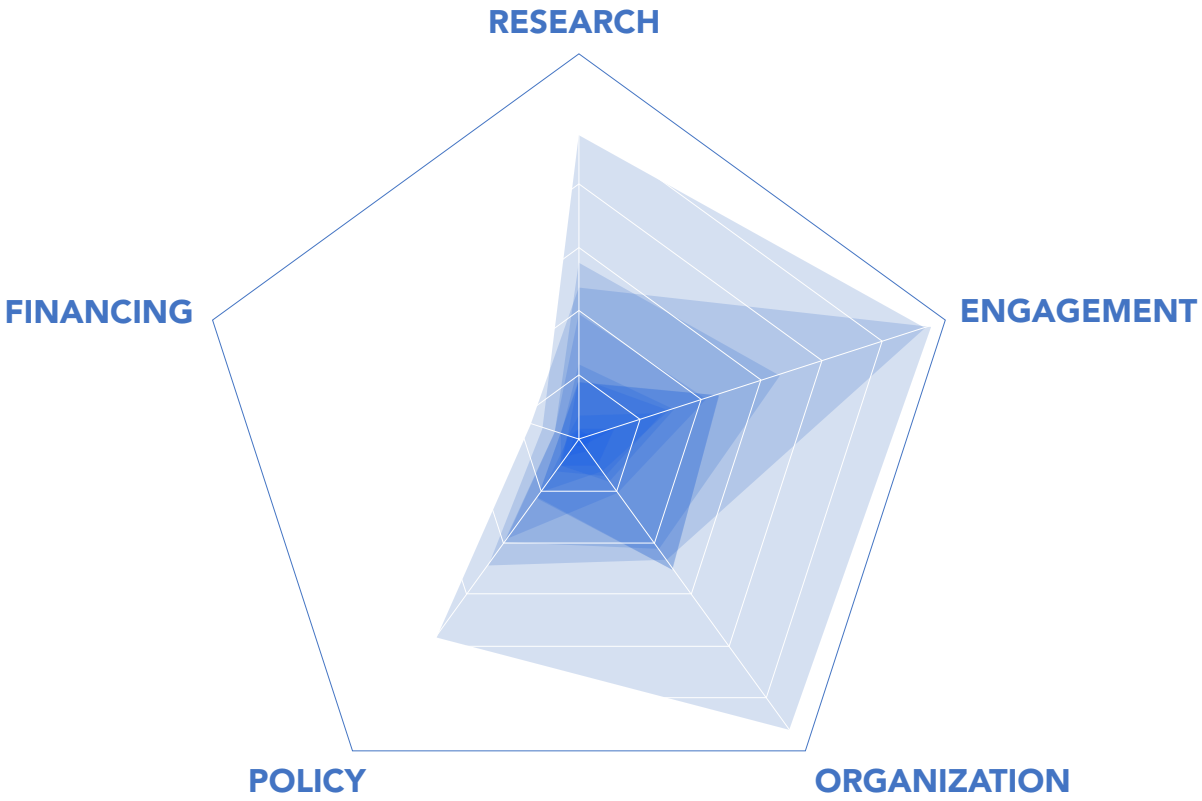
Below is a bar graph showing the number of organizations that are supporting each goal regardless of what strategy they are employing.



The conclusion that arose was the majority of, approximately 75 out of 80, organizations align their mission with Goal 1: **Community Organizing and Advocacy**. Approximately 70 organizations align their mission with Goal 2: **Public Education and Awareness** dedicated to grades K-12. Rounding out the shared commonalities, approximately 45 organizations align their mission with Goal 8: **Coastal Restoration, Estuarine Health, & Conservation/ Preservation**. Though many organizations are working to create pathways for advocacy, educational prospects and conservation, fewer than 10 organizations dedicate their mission to Goal 5: **Housing Affordability, Ownership, and Insurability** and Goal 10: **Cultural Preservation & Artistic Expression**.

GOALS & STRATEGIES

In addition to the 11 Adaptation Goals, each goal was subdivided into 5 Strategies: **Research, Engagement, Organization, Policy,** and **Financing**. Each organization interviewed indicated which of these strategies they employ in pursuit of each goal they are uplifting.

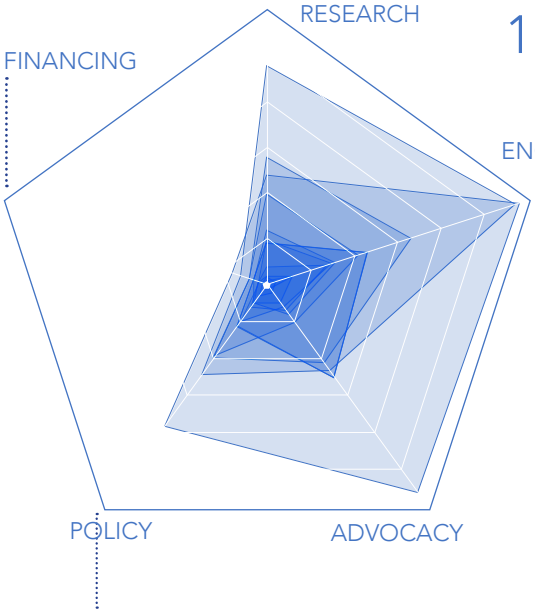


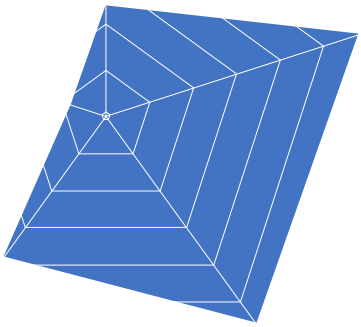
The graphics on the following page show a high-level snapshot of the data collected around the 11 goals and 5 strategies.

Goal 1: **Community Organizing and Advocacy** and Goal 2: **Public Education and Awareness** are supported by the most organizations, and Goal 5: **Housing Affordability, Ownership, and Insurability** and Goal 10: **Cultural Preservation & Artistic Expression** are supported by the fewest.

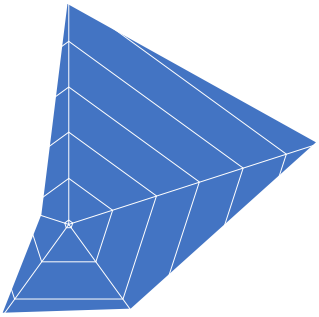
Each goal has a different profile of how many organizations support each strategy. For instance, Goal 2: **Public Education and Awareness** has around 50 organizations involved in research but fewer than 10 involved in financing. These goal profiles are intended to help identify strengths and weak spots in supporting each of these 11 goals and to create a cooperative network of organizations with a common purpose. Another finding that arose was an understanding that, though many organizations are working to create pathways for local jobs and business opportunities, there is minimal coordination and communication to effectively support an emerging coastal restoration and water management economy.

11 ADAPTATION GOALS



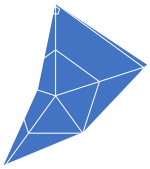


1
COMMUNITY ORGANIZING AND ADVOCACY



2
PUBLIC EDUCATION AND AWARENESS

3
STORMWATER MANAGEMENT PLANNING & IMPLEMENTATION

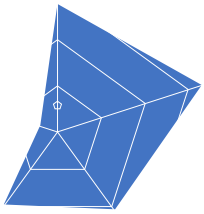


4
LAND USE, LAND SOVEREIGNTY, ZONING, AND WATERSHED PLANNING

5
HOUSING AFFORDABILITY, OWNERSHIP AND INSURABILITY

6
WORKFORCE AND SMALL BUSINESS DEVELOPMENT

7
ENVIRONMENTAL JUSTICE AND INDUSTRIAL / UTILITIES OVERSIGHT



8
COASTAL RESTORATION, ESTUARINE HEALTH, AND CONVERSATION/PRESERVATION

9
DISASTER PREPARATION, RECOVERY, AND COMMUNITY RESILIENCE

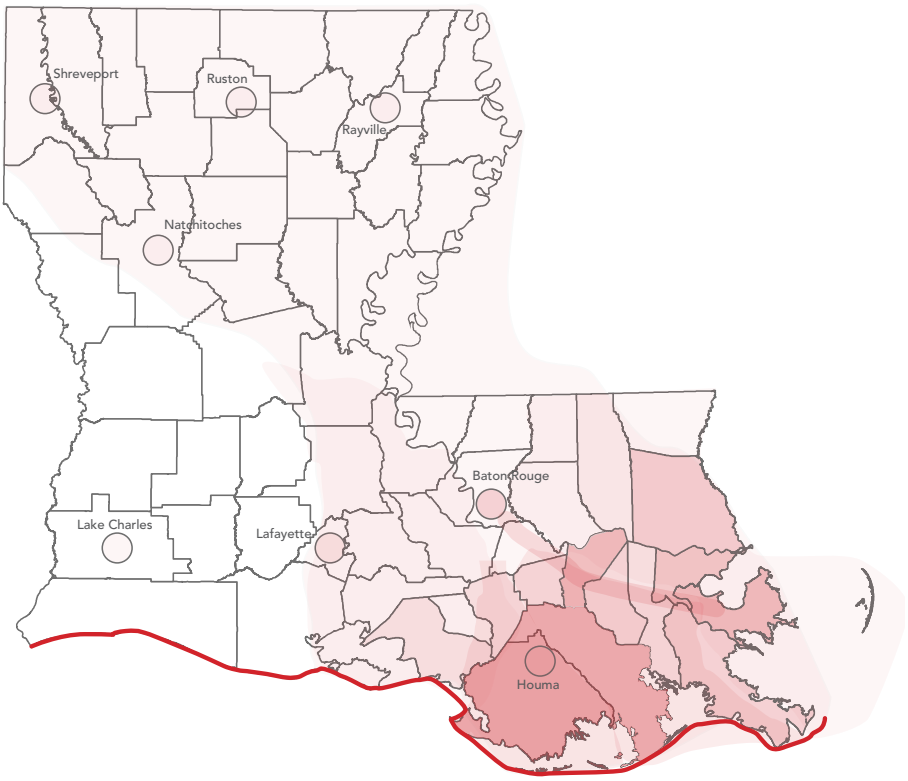
10
CULTURAL PRESERVATION AND ARTISTIC EXPRESSION

11
COMBATING CLIMATE CHANGE

WHERE THE WORK IS BEING DONE

During the inventory, organizations indicated where the majority of their work takes place. Organizations stated their primary and secondary areas of work, as well as where their headquarters were located. "New Orleans" and "Louisiana" were excluded as responses because of their disproportionate showing to other answers (60 and 48 organizations, respectively.)

Below is a heat map, focused on Louisiana, that overlays all of the organizations' responses, excluding their headquarters. The areas defined as Coastal and Southeast Louisiana were identified as the majority location as to where the participating organizations' work takes place. Whereas Orleans Parish, St. Tammany Parish, Plaquemines Parish and Baton Rouge are all equal with respect to where the work takes place, Assumption Parish, St. Mary Parish, Barataria Basin and Terrebonne Basin were identified with the lowest representation of where the work is being done.



In small groups, participants also explored elements of the Blue-Green Economy using the following five strategies to uncover what is possible and how to continue building out the pipeline:

1. Place-based development
2. Small business development
3. Workforce development
4. State and local polices
5. Education

Divided among these five scenarios, small group discussions provided a high-level assessment of the existing organizational infrastructure for new economies in the region and state. Following are some highlights from these discussions:

- Participants emphasized that everyone needs to continue working together. They felt that more work is required to activate cross-sector, statewide partnerships to advance the Blue-Green Economy. The idea of this kind of collaboration across fields of expertise and experience is promising, and there is a lot of will, but we will need clearly organized leadership to make it happen.

- Participants noted that all of the diverse relationships represented in the convening were important, and there is a lot of work ahead of the group to organize, but it is important also to acknowledge and respect the strength of this existing community of practice.

- Participants felt that the urgency around climate change, inequality, and the potential to waste the financial and other resources that are already at stake could be preventing us from seeing that transformation will still require working with people who do not necessarily share these values. Unless we intend to destroy the existing systems, we will need to build a narrative that both groups can see themselves being engaged in, and that can still move us forward expeditiously.

- Participants acknowledged that collaborative narratives are always messy and hard to construct. They felt that there is a need to talk meaningfully about the significance of a clear narrative in connecting with colleagues, and especially with the broader population. We need to better define the narrative behind the Blue-Green economy, and also the smaller, but significant stories embedded in each of the collective tasks that must be completed.

- Participants noted that to be successful in Louisiana (and elsewhere), the Blue-Green Economy and related projects will require significant political and electoral organizing.

Summary of findings for Convening Four

Convening four cast some light on a nascent Blue-Green economy that already exists in Louisiana, albeit with limited and largely ineffective coordination and organization. Despite billions of dollars in scattered resources and a small army of dedicated practitioners that are in many ways already aligned with supportive climate change goals and outcomes, there remain many messy details that must be resolved in order to create the collaborative and systemic infrastructure needed to leverage these resources in a way that can produce the transformational changes needed to address a future fraught with increasingly complex and potentially catastrophic challenges.

Convening Four Strategies & Actions
- Place-based development
- Small business development
- Workforce development
- State and local polices
- Education

4 FINDINGS

The end game of the Global Transformation Roundtable was to engage with a diverse group of local, regional, national, and global stakeholders to co-design a plan for adapting to uncertain futures with equity and advocacy as central considerations. To tackle these issues, three explicit goals were established for the project. Following is a brief summary of findings in each of the three goal categories.

1) DEVELOP FORESIGHT BY UNDERSTANDING THE MAJOR EXISTING AND EMERGING CHALLENGES TO ENHANCING LIVELIHOODS AND WELL-BEING DUE TO CLIMATE CHANGE

There is a general lack of understanding about the order and magnitude of threats from storms, subsidence, climate change and other contemporary existential hazards and risks. This has many causes including distrust towards the organizations providing the information, the breadth and complexity of the problem, and apathy about the long-term challenges.

When armed with trustworthy information, communities and networks can and must make wise and informed decisions about their future risks and alternative scenarios. There is a critical need for data from transparent and credible sources that are accurate, updated and comprehensive. There are also calls for more breadth and depth in data collection, including a more systemic approach to measuring effective development practices, the degree of trust in local governments, the social impacts of disasters, and how race and income intersect with all the above.

With its low lying coastal and riverine topographies and socio-economically diverse population, Louisiana exists at the epicenter of impacts as well as knowledge about these challenges and the mechanisms needed to address them. This unique position on the front lines of climate-induced flood risk and experience in managing and recovering from disasters optimally positions the state to create a dynamic economic engine at the epicenter of the global climate adaptation economy. If Louisiana can somehow harness this newfound expertise, along with the ability to mobilize the power of its citizens' collective resilience, and export that expertise to other communities, it can diversify its economy and provide a catalyst for healthy economic growth, creating more prosperity while at the same time reducing its own risk.

The global community can also benefit by learning from Louisiana's experience in planning and designing for climate change. With the rapid escalation of climate related events, there is a growing necessity to learn and implement best practices that have already been tested on the ground. By harnessing outside investment and incubating innovation and businesses to support them, Louisiana can build a powerful workforce that can export its expertise to communities around the world, including work in the fields of planning, design, engineering, construction, fabrication, and consultant services. In the coming decades and centuries, the world will demand this expertise.

2) IDENTIFY SOLUTIONS TO THE MOST PRESSING ADAPTATION QUESTIONS IN A WAY THAT MAKES THE RESEARCH USEFUL TO AT-RISK COMMUNITIES

Outcomes from the Global Transformation Roundtable point to some promising solutions for pressing adaptation questions raised by climate change. One is the need for more authentic community engagement. Another is for more holistic and systemic strategies for planning and design.

Residents' lack of trust in government and institutions is an urgent issue that must be addressed through new strategies for engaging all stakeholders. Governmental leadership is not working. We must find ways to cultivate a stronger sense of togetherness and to create networks of support outside what the government can provide. The problems we all face will seem less daunting when everyone is working together towards the same goal.

Two researchers at Stanford University's Global Project Center have identified solutions to some of the challenges around authentic innovation. In their essay: "Creating Breakout Innovation" they outline some best practices in creative problem solving:

"Over the last decade there has been an explosion of interest in collaboration, open innovation, and crowd engagement. Many companies are moving away from a model in which products and services are created through a closed, top-down, expert-biased process and toward open, crowd-sourced, user-driven strategies. Nonprofits, philanthropists, and community groups are also embracing cocreation as a response to the challenge of tackling pressing problems in an increasingly complex world.

"And yet, while the language of cocreation is en vogue, relatively few organizations are applying cocreative strategies to innovate boldly. We celebrate the solutions resulting from design competitions and open innovation processes, yet few of the results lead to systems change or profoundly shake up what is considered possible. Despite all the rhetoric of cocreation as an important tool for innovation, it appears that the majority of such efforts are doing little to challenge the basic structures of problem-solving. Meanwhile, our world cries out for designs that reimagine the way we do pretty much everything if we are to solve pressing problems like climate change, extreme inequality, and poverty……."

"We worked with the co-learning group to identify specific practices associated with breakout innovation that are central to each organization's way of work. We identified five practices that were strikingly consistent across the broad diversity of fields in the group. We believe that these five practices of breakout innovation offer a way for organizations to step beyond the self-imposed limits of business as usual—or even innovation as usual—to unleash the profound breakthroughs needed to tackle pressing social problems."

"Practice 1: Share Power | While many crowdsourcing, open innovation, and consultation processes ask stakeholders to provide input, relatively few share power. Sharing power means distributing the functions of decision making, creation, implementation, and evaluation among the process participants, and dissolving once-rigid divides between designer and consumer, expert and beneficiary."

"Practice 2: Prioritize Relationships | Relationships are an organization's greatest asset, both for immediate work and for the challenges that may arise in the future. A key to building and sustaining strong relationships is to establish a "fair deal"—which we reconceptualize as a "co-commitment." Research on crowdsourcing shows that one of the most salient factors motivating people to take part in a process is whether or not participants consider the process fair.9 Important considerations include how decisions will be made, what will happen with the input that participants provide, what access participants will have to the final product, and what ground rules everyone will follow."

"Practice 3: Leverage Heterogeneity | Most organizations now acknowledge the need for heterogeneity, both in their own makeup and in the organizations and people they work with. But few organizations go beyond the superficial "check-the-box" inclusion efforts often associated with diversity…. "The importance of heterogeneity is partially explained by a mathematical principle: When a sufficiently large and diverse group of people is asked to make predictions or assessments independently, the errors each makes in coming up with an answer cancel each other out, leaving the most accurate information.11 However, if individual ideas are not also challenged, the group will not rise above the initial baseline of each individual's own thinking. Therefore, processes that blend independent engagement with collective reflection leverage heterogeneity most effectively and have the best chance of producing profound insights."

"Practice 4: Legitimize All Ways of Knowing | It can be challenging for many people to accept that all types of knowledge are legitimate. Because most innovation processes heavily privilege knowledge that reflects academic or technical training, it is important to actively source knowledge in other ways. This often requires people to unlearn what we refer to as "expert bias."……" There is a growing acceptance in the social sector of the value of nonformal knowledge as well as the importance of unconscious, intuitive, and embodied insights. Many cultures recognize that humans learn and communicate in nonverbal ways with one another, and with animals, trees, plants, and the land itself. These concepts parallel recent scientific findings such as those showing that walking through a natural landscape activates the brain in ways that enhance problem solving and insight."

Practice 5: Prototype Early and Often | A prototype is a draft, model, or mock-up of an idea. To prototype early and often is to share and test ideas with participants at each step of the process. This approach leads to better next-stage drafts, creates buy-in and ownership among participants, and sharpens the group's thinking and innovation. Effective design processes go through multiple prototype cycles—casting a wide net with each cycle.

Research shows that groups produce the richest, most accurate information when they are involved at multiple points throughout a design process. The rapid prototyping and recurrent user testing at the heart of the lean startup methodology affirms this. Most social sector organizations do little if any prototyping. Most large scale development projects, for example, do not allow the public to comment until a plan has been largely decided and significant sums of money have already been invested in feasibility and preparatory studies, at which point what is actually open for public input is "everything but the essentials."

"Perhaps the most profound questions raised by our findings are: What is the root of the mind-set that now requires unlearning in order to be capable of breakout innovation, of reimaging our world? What happens that pushes these practices to the fringes of today's dominant paradigm? How can we change things so that these breakout practices are the natural way to imagine, plan, and build together?

To break out of the state of our current world and innovate a future that works for everyone, the way forward may be as much a remembering of what has come before as it is an invention of a brand-new path. In this spirit, we propose a new term: that the mind-set and practice of breakout innovation may be considered a re-collective way—a process of being comfortable with imagining the not-yet invented, along with having a mindful recollection of an intuition we carry deep within our souls of what it is to be human in community." ("Creating Breakout Innovation;" Joanna Levitt Cea and Jess Rimington; Stanford Social Innovations Review; Summer 2017.)

Going to where residents live, work, and play, and talking with them as equals, as in the LA SAFE process, is a strong step in the right direction. All communications must include language that does not sound too academic or scientific. Whenever possible this information should be illustrated visually and could perhaps even be available at community events, festivals, curated spaces, and other events to make coastal risk more tangible.

Honest, accurate, and accessible information must be made available so that these most vulnerable populations can make educated decisions about the environmental risks they face. One tool for

more effective community engagement is to help all stakeholders visualize futures in different action-scenarios that communicate both future risks as well as opportunities.

Complex challenges require systemic solutions. In order to inform future planning efforts and decisions, the state of Louisiana has already invested heavily in research led by The Water Institute for the Gulf (TWIG) and the Coastal Protection and Restoration Authority (CPRA). This research seeks to understand how the coast is physically transforming and to predict how it will change in the future. An investment in complementary research that seeks to understand how these physical transformations affect the many social, cultural, and other essential needs of coastal residents is also needed. These impacts of climate change on both physical and non-physical challenges are especially important for the state's low-income, minority populations who are disproportionately located in high-risk flood and disaster areas.

This kind of systems thinking, which goes beyond physical challenges to include a full plate of cultural, social, economic, organizational, and educational domains of community life is also consistent with the complexity of challenges in planning for the impacts of all natural ecosystems. One goal of this line of research must be to develop appropriate indicators for what constitutes a truly healthy community - one that also exists in harmony with the rhythms of the natural world.

One strong advocate for this kind of systems thinking is noted physicist and systems theorist Fritjof Capra, who notes in the preface for his book "A Systems View of Life":

"*As the twenty-first century unfolds, it is becoming more and more evident that the major problems of our time – energy, the environment, climate change, food security, financial security – cannot be understood in isolation. They are systemic problems, which means that they are all interconnected and interdependent. Ultimately, these problems must be seen as just different facets of one single crisis, which is largely a crisis of perception. It derives from the fact that most people in our modern society, and especially our large social institutions, subscribe to the concepts of an outdated worldview, a perception of reality inadequate for dealing with our overpopulated, globally interconnected world."*
"There are solutions to the major problems of our time; some of them even simple. But they require a radical shift in our perceptions, our thinking, our values. And, indeed, we are now at the beginning of such a fundamental change of worldview in science and society, a change of paradigms as radical as the Copernican revolution. Unfortunately, this realization has not yet dawned on most of our political leaders, who are unable to "connect the dots," to use a popular phrase. They fail to see how the major problems of our time are all interrelated. Moreover, they refuse to recognize how their so-called solutions affect future generations. From the systemic point of view, the only viable solutions are those that are sustainable. A sustainable society must be designed in such a way that its ways of life, businesses, economy, physical structures, and technologies do not interfere with nature's inherent ability to sustain life." (Footnote: "A Systems View of Life; Fritjof Capra; Preface; April 2014; Cambridge University Press)

Further research is also needed to identify and create equitable and sustainable public and private funding and financing scenarios. The question of how to pay for resilience and adaptation programs and projects has been one of the major roadblocks to successful implementation both within and outside of Louisiana. Considerations of equity in financing resilience and adaptation add yet another layer of complexity to this kind of research. Understanding how to address pre-existing legal and structural barriers that may impede the access of some groups to such financing is important to achieving whole community transformation.

3) CREATE STRATEGIES FOR COMMUNITY-BASED RESPONSES TO THE IMPACTS OF CLIMATE CHANGE

The world is already too late in preventing greater flood risk in the future. The consequences can now be measured in unnecessary loss of life, damaged and destroyed communities, and diminished economic prosperity. Unless abated, these challenges will continue to persist and increase over time.

As with the challenges, the solutions must address a wide range of the physical, cultural, social, economic, organizational, and educational impacts as identified by participants in the LA SAFE community meetings as well as all four of the Global Transformation Roundtable convenings. To address these impacts, the following high-level strategies are proposed:

Physical Strategies: The people of Louisiana and around the world deserve to live in responsible, sustainable communities of opportunity, in balance with the environment, and with agency and increased dignity. The future with increased risk will offer new opportunities for some and force relocation and resettlement for others.

Many "sending communities" will be forced to contemplate existence with a reduced population and contracted economy, and perhaps a smaller land footprint. Land in all coastal regions is a shrinking commodity. As global communities consider long-term mitigation of flood impacts, land use strategies should be a vital component. Governmental entities cannot afford continuing development practices exacerbating its exposure to flood risk. Likewise, with each passing flood, it cannot continue to rebuild in place and in replication of what previously existed.

A long-term view of the future coastline and flood risk must also include a coordinated plan for anticipated migration. Strategic land use must not only consider low-lying and higher-risk communities, but it also must consider locations naturally less likely to flood—those communities poised to become "receiver communities" as populations continue to move away from risk.

These receiver communities will experience growth both rapid and gradual as populations continue to flee more flood-prone areas for those naturally higher—and drier. By identifying locales that are high and safe, and have historic building stock in need of redevelopment, the state (and elsewhere) can invest in these communities, supporting, economic development opportunities, disaster preparedness resources, affordable housing, and other incentives to strengthen town centers and to provide an attractor for coastal residents who choose to move from high-risk areas. These "Resilience Hubs" will be models for sustainable growth and economic opportunity that are developed in balance with the environment.

Cultural Strategies: Strategies to promote community cohesion and celebrate indigenous and other cultural assets in coastal Louisiana include elements like seafood, music, and language. To reinforce these elements, it will be important to support programs that highlight and promote these community strengths. One way to support these strengths is to go to where residents live, work, and play and talk to them as equals, using language that does not sound overly academic or scientific.

Strategies to clearly place value in culture and recreation sectors must be reinforced through policy and programs that support all of the beautiful cultures that exist in coastal Louisiana, including non-English speaking communities. One helpful tool is to illustrate information visually and present it at festivals, curated spaces, and other events that can help to make coastal risk more tangible. Participants in the convenings wanted to cultivate a stronger sense of togetherness and to create

networks of support outside what the government provides. They confirmed that the problem would seem less daunting when everyone is working together towards the same goal.

When disaster comes, some minority populations might move to "low-risk" flood zones. These existing communities are often more challenged by issues around race and equity and may target the incoming vulnerable demographic with inequitable zoning policies, social hostility, and other forms of exclusion. Adapting to climate change without exacerbating or replicating these historic racial and geographic inequities will be a high priority.

Social Strategies: The state's lowest-lying communities are currently losing population while higher-ground areas—those naturally better protected from coastal floods—are gaining in population. Additionally, as these disaster-vulnerable communities—and many others like them—have declined in population, most have experienced parallel declines in median household incomes and increases in poverty rates. In short, those who choose to move are often those with the financial means and social networks to do so, while in many cases, lower-income populations—those most vulnerable to severe impacts when disasters occur—remain behind and in locations more prone to significant flood risks. This effect carries consequences, including contracting tax bases and fewer available resources for social services and infrastructure investments.

In addition to infrastructure investments, long-term adaptation must also include plans for new, resilient, and affordable housing stock. As coastal lands disappear, supply chains and transportation patterns will be disrupted, resulting in necessary adjustments to the network. Private property and water use rights will become more contentious issues.

Coastal parishes relying on immovable natural resources and infrastructure for their economic survival may increasingly become commuter parishes, impacting social networks, local culture, and demand for goods and services. Changing environments impact every aspect and function of society, which the adaptation and resettlement plans must address.

Economic Strategies: There is a growing need for more innovation in the disaster and coastal adaptation and resilience fields. Louisiana has experienced and recovered from more water-related disasters than any other state, and at the top of the list globally. This reality can be leveraged to create an adaptation, water management, and disaster recovery economy - called the Blue-Green Economy - to attract companies to use Louisiana as the "testing grounds" for these sectors. The development of this new Blue-Green Economy within Louisiana can also serve as a prototype for replication around the world, to support the proactive mitigation of climate change consequences while improving resilience, sustainability, Blue-Green market advantages and job opportunities, and human and health security for all.

The burden of maintaining the homes, surrounding infrastructure, education, and other social services may be more expensive to taxpayers and insurance companies in the long term than creating an option for residents to move with agency and dignity to a better situation. Further, the cost of not supporting transition includes the lost opportunities for increasingly isolated residents and communities in high-risk areas to fully contribute to the economy. These impacts will play out in ways that increase the need for State support and create a legacy of poverty and missed opportunity that can ripple down to future generations. To provide a real option to relocate, in some cases, residents will need to be supported above fair-market value of their homes. A holistic resettlement approach means a greater investment up front for a long-term return that avoids the greater cost of inaction.

One important step will be to create a transition fund that will provide support for those who wish to move from high-risk areas to lower-risk areas. Investments in these new "resilience hubs" can create economic development zones in existing high-ground places that are anticipated to grow.

Determining appropriate funding and compensation associated with relocation in ways that supplement traditional cost-benefit-analysis calculations might also include a flexible valuation tool that we will call a "Resettlement and Community Benefits Agreement." With the help of this tool, communities would inform how to value aspects of their quality of life that would be integrated into migration support services.

A Community Development Finance Initiative (CDFI)-like instrument/institution can be used to create funding for climate and water resilience as well as social impact investments. These investments will be used as leverage to influence and align State funding. The fund can be leveraged to build skills in the Louisiana (and elsewhere) workforce and ensure that it stays within the local economy, fostering the transformation from desperation and risk towards entrepreneurism, security, and abundance.

To support the long-term goal of a resilience hub in every Metropolitan Planning Organization (MPO) district, the first step would be to announce and pilot the first resilience hub based on one of the already designed LA SAFE projects. During this time, a macro-analysis of demographics, economics, and ecosystem services could inform the capacity of areas to grow, the amount of people at risk of displacement, etc. The first pilot would be complete and operational with a multi-sectoral governance structure (see Super-Project 3) that includes leveraged partnerships and an implementation agency with external accountability. The transition fund would be created and a concerted effort to create sustainable, efficient, and affordable home designs will need to be developed to create affordable housing options. The fund can also support the creation of a resilience land bank and the creation of a governance entity to manage the legal and financing elements, engage residents and stakeholders, build infrastructure, etc.

Organizational Strategies: The State cannot define what the holistic resettlement approach should be by itself. Each community will have different skills, needs, and values. The State should develop a Community Benefits Agreement to fill the gap between a straightforward buyout that might be determined by a Benefits Cost Analysis and a truly holistic resettlement plan. The people most qualified to inform the dollar-value benefit of intangible values are the communities themselves, supported by technical experts.

Another desired outcome is to close economic disparities among Louisiana's population, achieving full employment and entrepreneurism across race, gender, and geography to build community and power. To achieve this outcome, the participants in the convenings recommended the creation of an Office of Economic and Opportunity Development.

The simultaneous climate impacts planning processes for the Global Transformation Roundtable, LA SAFE and community training led by the Foundation for Louisiana has also resulted in a more educated and connected public. Each process has contributed to the development of a robust database that identifies organizations and institutions doing this important work. The asset mapping of these climate partners also documents where and what work is being done. Additional work must now proceed to expand knowledge and resources with respect to community engagement, advocacy, and research. At the same time, an even larger commitment must be made to advancing research and innovation in the critical domains of policy and financial Investment.

Educational Strategies: Education, economic diversification, and smart-growth principles are part of the solution. Most Louisiana citizens are aware they live in an especially flood-prone state. However, awareness should not be confused with understanding. Louisiana's educational system includes curriculum on its rich history and culture. However, there is no consistent curriculum outlining Louisiana's coastal condition or broader flood risk profile. More alarmingly, there is no effort aimed at educating the public on the relative benefits—and limitations—of risk reduction and restoration efforts, or of ways to more effectively manage water and its many assets and liabilities. Through education, Louisiana's citizens can develop a better understanding of what happens in areas susceptible to severe, repetitive disaster events and how lower-income, often underserved, populations are disproportionately impacted by these events. Its citizens can learn how diverse, robust economies provide natural disaster resilience and how smart-growth and other innovative planning principles offer opportunities to maximize land uses in the state's higher and less flood-prone places. Coalitions can be built and motivated to a scale appropriate to the existential crisis at hand.

An educated and engaged public can become an interconnected network of community-based groups that support common sense watershed management strategies across parish boundaries and resist risk-prone development proposals in high-risk areas. Regional entities will need to be developed with power in the permitting process to address risk across watersheds. No new development incompatible with a high degree of flood risk should take place in high-risk areas. All parishes should develop, codify, and enforce risk-based land use plans.

To support these outcomes, the group recommended the creation of a scorecard around resilience (not insurability), similar to the Community Rating System for all State projects, and to tie the score to upcoming funding to create capacity and incentives for governments to manage land and reduce risk. This scorecard will help to tell the story of risk in each area with common language and will inform incentive alignment decisions. This initiative will require a seed fund, a study of lessons learned from deindustrialized cities, and a deep dive into socio-political issues in receiving communities to minimize friction and conflict.

THREE BIG IDEAS

At the end of the day, there are three big ideas that encapsulate many of the challenges, solutions, and strategies discussed in the various roundtable convenings. First is the need for a more open and authentic process for engaging stakeholders. Second is the need for a more systemic means of problem solving. Third is the need for a more ecological way of thinking about our work, jobs, and systems of remuneration. But how will we know when we are on the right track?

We will know we are on the right track with **transformative stakeholder engagement** when planners and governments are no longer sending out invites to community meetings and blaming the community when only small numbers of people show up. As with all other market-driven enterprises, the entity responsible for engaging must acknowledge when a process is not authentic, trustworthy, or interesting enough to fill the room with willing and active participants. And the outcomes generated must be evaluated not on whether people filled out the appropriate forms, but instead on how the real work of moving the community's shared goals and objectives forward got done as a part of process. In short, it's about whether the principles of democracy were honored, and the challenges were significantly resolved, as evaluated by the public we are meant to serve.

We will know we are on the right track with **transformative systems thinking** when we can see a

mindset from government agencies, non-governmental organizations, and the public in general that measures success by accounting for how many times an investment can be leveraged to produce a multiple of outcomes. No longer can we settle for agencies and organizations that put their individual politics above the politics of the common good. The new normal for success must be accounted for through a process where the whole can be shown to be better or stronger than simply the total of its parts.

We will know we are on the right track with a **transformative economic mindset** when we are free to measure the success of our economic system more comprehensively -- including a healthy balance among a full spectrum of interdependent financial, human, naturalistic, and all other ecological returns. A longer and more harmonious approach to employment, perhaps around a new Blue-Green economic reality, will result in the most sustainable economic outcomes for all present and future generations.

5 EPILOGUE

As this Global Transformation Roundtable report goes to print, with its many insights and issues related to planning for climate change, we find ourselves in the early stages of yet another set of catastrophic physical, cultural, social, economic, organizational, and educational impacts wrought by the global coronavirus pandemic. Suffice to say that all of these issues are closely intertwined, and their resolution will require even greater levels of systemic alignment and cooperation among all parties.

In their essay: "Pandemics: Lessons looking Back from 2050," systems theorist Fritjof Capra and systems analyst Hazel Henderson explore the impacts of the COVID-19 pandemic as if looking back in time from the year 2050 to hypothesize about the outcome of these events, based on a series of transformational assumptions:

"As we move into the second half of our twenty-first century, we can finally make sense of the origin and impact of the coronavirus that struck the world in 2020 from an evolutionary systemic perspective. Today, in 2050, looking back on the past 40 turbulent years on our home planet, it seems obvious that the Earth had taken charge of teaching our human family. Our planet taught us the primacy of understanding of our situation in terms of whole systems, identified by some far-sighted thinkers as far back as the mid-nineteenth century. This widening human awareness revealed how the planet actually functions, its living biosphere systemically powered by the daily flow of photons from our mother star, the Sun.

Eventually, this expanded awareness overcame the cognitive limitations and incorrect assumptions and ideologies that had created the crises of the twentieth century. False theories of human development and progress, measured myopically by prices and money-based metrics, such as GDP, culminated in rising social and environmental losses: pollution of air, water and land; destruction of biological diversity; loss of ecosystem services, all exacerbated by global heating, rising sea levels, and massive climate disruptions.

These myopic policies had also driven social breakdowns, inequality, poverty, mental and physical illness, addiction, loss of trust in institutions — including media, academia, and science itself — as well as loss of community solidarity. They had also led to the pandemics of the 21st century, SARS, MERS, AIDS, influenza, and the various coronaviruses that emerged back in 2020. During the last decades of the 20th century, humanity had exceeded the Earth's carrying capacity……"

"Now we know why human populations topped out at the 7.6 billion in 2030, as expected in the most hopeful scenario of the IPCC, as well as in the global urban surveys by social scientists documenting the decline of fertility in Empty Planet (2019). The newly aware "grassroots globalists," the armies of school children, global environmentalists and empowered women joined with green, more ethical investors and entrepreneurs in localizing markets. Millions were served by microgrid cooperatives, powered by renewable electricity, adding to the world's cooperative enterprises, which even by 2012 employed more people worldwide than all the for-profit companies combined. They no longer used the false money metrics of GDP, but in 2015 switched to steering their societies by the

UN's SDGs, their 17 goals of sustainability and restoration of all ecosystems and human health.

These new social goals and metrics all focused on cooperation, sharing and knowledge-richer forms of human development, using renewable resources and maximizing efficiency. This long-term sustainability, equitably distributed, benefits all members of the human family within the tolerance of other species in our living biosphere. Competition and creativity flourish with good ideas driving out less useful ones, along with science-based ethical standards and deepening information in self-reliant and more connected societies at all levels from local to global.

When the coronavirus struck in 2020, the human responses were at first chaotic and insufficient, but soon became increasingly coherent and even dramatically different. Global trade shrunk to only transporting rare goods, shifting to trading information. Instead of shipping cakes, cookies and biscuits around the planet, we shipped their recipes, and all the other recipes for creating plant-based foods and beverages; and locally we installed green technologies: solar, wind, geothermal energy sources, LED lighting, electric vehicles, boats, and even aircraft."

"Today's eco-cities include food grown in high rise buildings with solar rooftops, vegetable gardens, and electric public transport, after automobiles were largely banned from urban streets in 2030. These streets were reclaimed by pedestrians, cyclists and people on scooters browsing in smaller local stores, craft galleries and farmer's markets. Solar electric vehicles for inter-town use often charge and discharge their batteries at night to balance electricity in single-family houses. Free-standing solar-powered vehicle re-charger units are available in all areas, reducing use of fossil-based electricity from obsolete centralized utilities, many of which went bankrupt by 2030……."

"As a consequence of all these changes, the global climate has finally stabilized, with today's CO2 concentrations in the atmosphere returning to the safe level of 350 parts per million. Higher sea levels will remain for a century and many cities now flourish on safer, higher ground. Climate catastrophes are now rare, while many weather events still continue to disrupt our lives, just as they had in previous centuries. The multiple global crises and pandemics, due to our earlier ignorance of planetary processes and feedback loops, had widespread tragic consequences for individuals and communities. Yet, we humans have learned many painful lessons. Today, looking back from 2050, we realize that the Earth is our wisest teacher, and its terrible lessons may have saved humanity and large parts of our shared planetary community of life from extinction." (Footnote: "Pandemics: Lessons looking back from 2050": Capra and Henderson; 2020.)

While these musings may at first appear to be extreme, they are useful in imagining both the scale and complexity of the transformational challenges and changes that lie ahead. The foresights embodied in this multi-generational journey will perhaps foreshadow the outcomes for not only the human species, but to some degree life on the planet for centuries to come.

BELLAGIO : GLOBAL TRANSFORMATION ROUNDTABLE PRINCIPLES

One goal of the Global Transformation Roundtable was to explore a set of guiding principles for the transformational planning and implementation of the work going forward. The following six principles were outlined at the end of the three-day convening in Bellagio, Italy:

- Promote the highest principles of **honesty and integrity** in all planning for transformational change.
- Establish and maintain **equity and agency** for all people in determining future pathways forward.
- Develop and apply proven **scientific and evidence-based** data in the creation of all future development decisions and scenarios.
- Make immediate **systemic and sustainable investments** that maximize the impact of our limited and precious public resources.
- **Engage and educate whole communities** in the need for systemic and transformational solutions.

6 ACKNOWLEDGMENTS

The Global Transformation Roundtable

The Global Transformation Roundtable is a co creative venture involving more then 82 participants over a three-year period from 2017-2020 was funded by a grant from The Rockefeller Foundation.

Sam Carter | Rockefeller Foundation | Program Officer
Kirsten Eiler | Rockefeller Foundation | Program Officer

The first convening was funded by the Walton Family Foundation

Kristen Tracz | Walton Family Foundation | Program Officer

The project was directed by Concordia, a national community centered planning and design firm with headquarters in New Orleans, Louisiana. Concordia's climate-based planning includes the coordination of the Unified New Orleans Plan (UNOP) for the recovery of the city after hurricane Katrina and led the process of strategic community engagement for the six parish wide Louisiana Strategic Adaptations for Future Environments (LA SAFE) project.

Steven Bingler; Founder and CEO | Concordia | Principle Investigator
Bobbie Hill; Principal | Concordia | Senior Project Manager
Connor McManus | Concordia | Project Manager
Erin Shew | Concordia | Project Manager
Ali Rex | Concordia | Project Planner
George Silvertooth | Concordia | Project Implementation

Administrative, evaluation and academic support for the roundtable was provided by the University of New Orleans – Center for Hazards Assessment, Response and Technology (UNO-CHART) UNO-CHART is an applied social science hazards research center that partners with and supports Louisiana communities and national activities in efforts to achieve disaster resilience through risk reduction and mitigation. UNO-CHART's vision is to support applied research focusing on sustainability and resilience strategies that acknowledge natural, technological, and environmental risks in the region, and to collaborate with similar programs across the country.

Monica Teets Farris; Ph.D. | UNO-CHART | Co-Principle Investigator
Pamela Jenkins; Ph.D. | UNO-CHART | Project Evaluator
Tara Lambeth, Ph.D. | UNO-CHART | Project Planner
Bradley Spiegel | UNO-CHART | Graduate Research Assistant
Benjamin Thomans Quimby | UNO-CHART | Graduate Research Assistant

The project organization included a planning committee with representatives from partnering public and non-profit organizations

Mathew Sanders | State of Louisiana OCD | Planning Committee
Liz Williams Russell | Foundation for Louisiana | Planning Committee
Rachel Thomason Sanderson | Foundation for Louisiana | Planning Committee
Camille Manning Broom | Center for Planning Excellence | Planning Committee
Colette Pichon Battle | Gulf Coast for Law & Policy | Planning Committee

7 APPENDIX

Inventory of Climate Adaptation Organizations in Louisiana

Full list of Climate Adaptation Organizations in Louisiana

Biographies of Participants

Convening Summaries

Convening 1
Convening 2
Convening 3
Convening 4
UNO-CHART Evaluation

Papers and Publications

LA SAFE: Executive Summary (Link to full reports)
Global Transformation Roundtable Research Papers
Breakout Innovation: Joanna Levitt Cea and Jess Rimington
Pandemics: Lessons looking back from 2050: Fritjof Capra & Hazel Henderson

INVENTORY OF CLIMATE ADAPTATION ORGANIZATIONS IN LOUISIANA

RESEARCH BY UNO-CHART
GRAPHIC DESIGN BY CONCORDIA | ARCHITECTURE, PLANNING, & COMMUNITY ENGAGEMENT

UNO-CHART conducted an inventory and initial analysis of 140 Louisiana organizations working in the climate adaptation field. The purpose of this review was to describe, as far as possible, the reach and the focus of the organizations in this field. Through the work of this project, it became apparent that there are silos in the field; not necessarily intentional, but often occurs with focus and geography of each organization's work. Project team members began this review by collaborating with our partners who provided their lists of organizations with whom they work; this provided the basis for the additional research. Using interviews and website reviews, the researchers determined where each organization fit best into the following Adaptation Focus Areas.

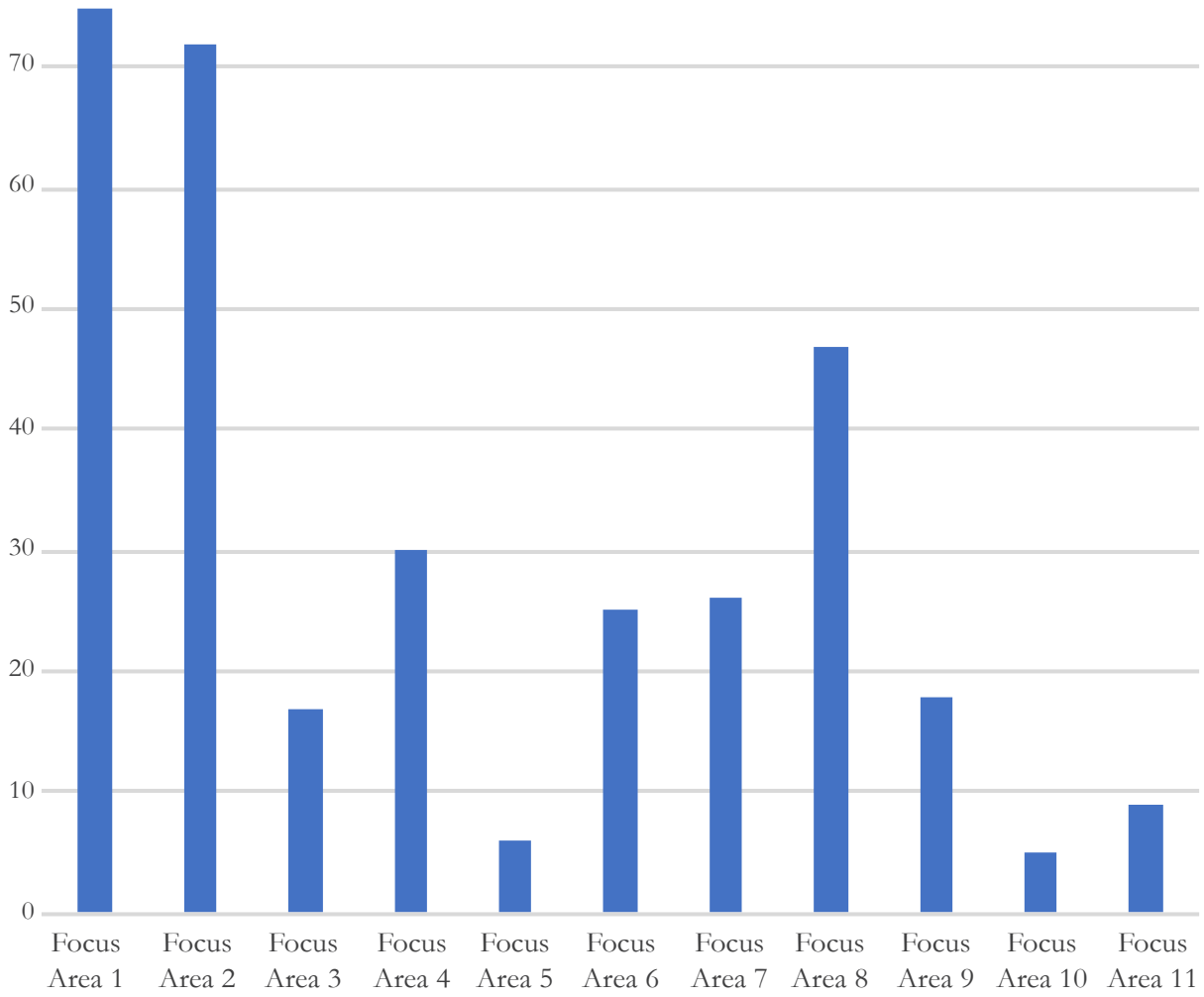
The focus areas and strategies were initially developed at the Coastal and Climate Adaptation and Coordination Meeting sponsored by the Foundation for Louisiana and Greater New Orleans Foundation (partially funded by Rockefeller Foundation), but then modified throughout our research. These focus areas represent the breadth of the work of climate adaptation and reflect its complexity. This is the initial analysis of the organizations in Louisiana. UNO-CHART will use the list created and this initial analysis to develop a deeper investigation into the organizational strengths in Louisiana. We anticipate using this initial research for further strategic planning.

Focus Areas 1 and 2 are supported by the most organizations, and Focus Areas 5 and 10 are supported by the fewest. Though many organizations are working to create pathways for advocacy and educational prospects, fewer than 10 organizations dedicate their mission to Focus Areas 5: Housing Affordability, Ownership, and Insurability and Focus Areas 10: Cultural Preservation & Artistic Expression.

ADAPTATION FOCUS AREAS

Focus Area 1: **Community Organizing and Advocacy** (including community organizing and policy advocacy)
Focus Area 2: **Public Education and Awareness** (including K - 12)
Focus Area 3: **Stormwater Management & Green Stormwater Infrastructure** (including planning and implementation)
Focus Area 4: **Land Use, Land Sovereignty, Zoning, & Watershed Planning** (including planning and implementation)
Focus Area 5: **Housing Affordability, Ownership, and Insurability**
Focus Area 6: **Workforce & Small Business Development**
Focus Area 7: **Environmental Justice & Industrial/Utilities Oversight**
Focus Area 8: **Coastal Restoration, Estuarine Health, & Conservation/Preservation**
Focus Area 9: **Phases of Disaster** (e.g. Disaster Prep & Recovery, Community Resilience)
Focus Area 10: **Cultural Preservation & Artistic Expression**
Focus Area 11: **Climate Change**

Below is a bar graph showing the number of organizations that are supporting each Focus Area regardless of what strategy they are employing.

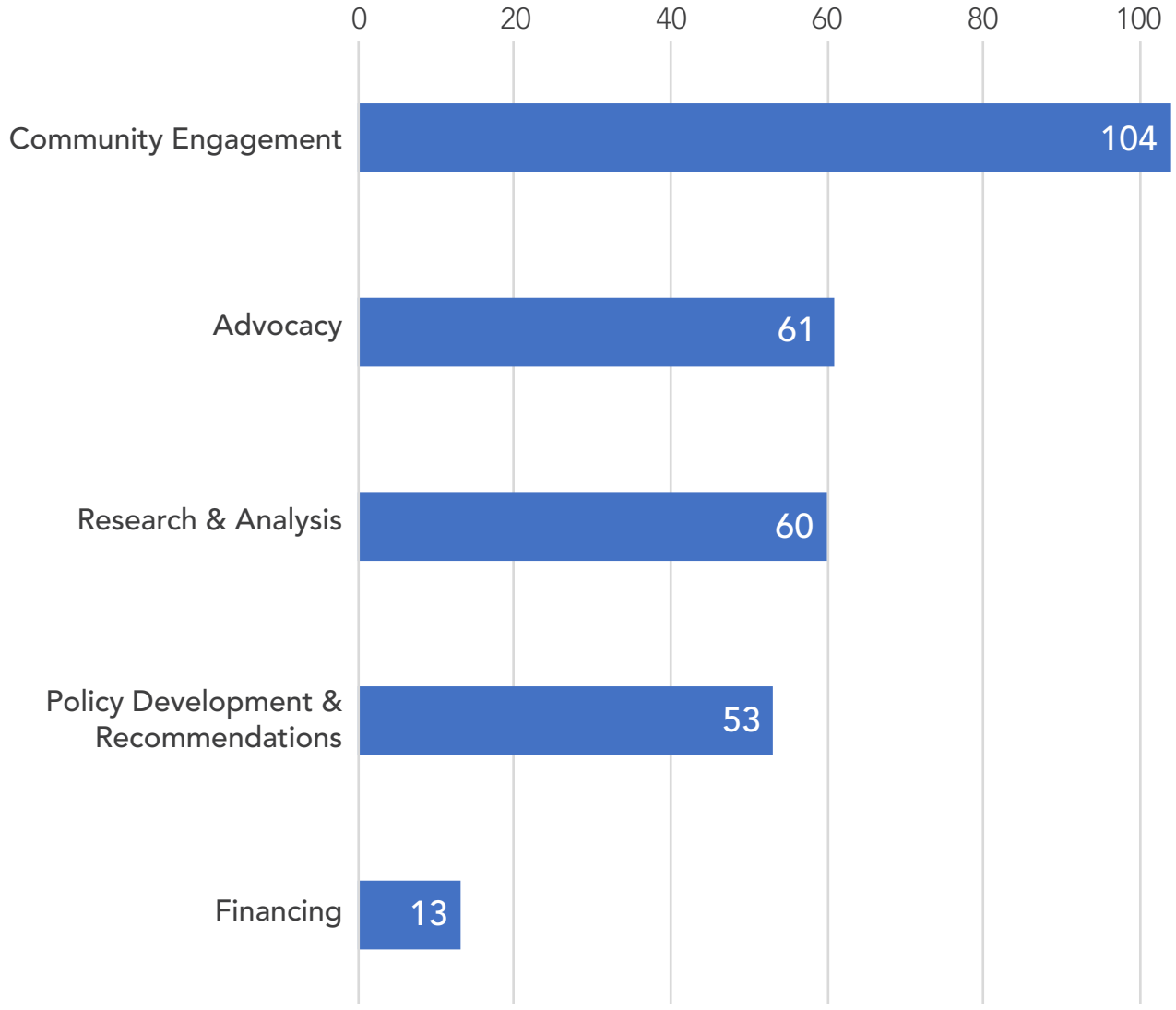


STRATEGIES

To further understand an organization's Focus Areas, each was categorized by a strategy-- how the organization did their work: **Research, Engagement, Organization, Policy**, and **Financing**. Each Focus Area has a different profile of how organizations support each strategy. For instance, Focus Area 2: **Public Education and Awareness** has about 50 organizations involved in research but fewer than 10 involved in financing.

STRATEGIES

Below is a bar graph showing the number of organizations that utilize each strategy regardless of what Focus Area they support. Results show that an overwhelmingly number of organizations rely on Community Engagement (75%) while few utilize financing (9%) to support focus areas.



STRATEGIES AND ISSUE AREAS

This profile, and the one on the following page, are intended to identify strengths and challenges in these 11 Focus Areas and to help create a cooperative network of organizations. These graphs reflect the organizational development in Louisiana- from environmental justice issues (such as air and water quality) to equity issues in the development of the blue/green economy. Figure 1 combines all focus areas into one large analysis with all strategies. Figure 2 breaks down each individual focus area by strategy illustrating the differences.

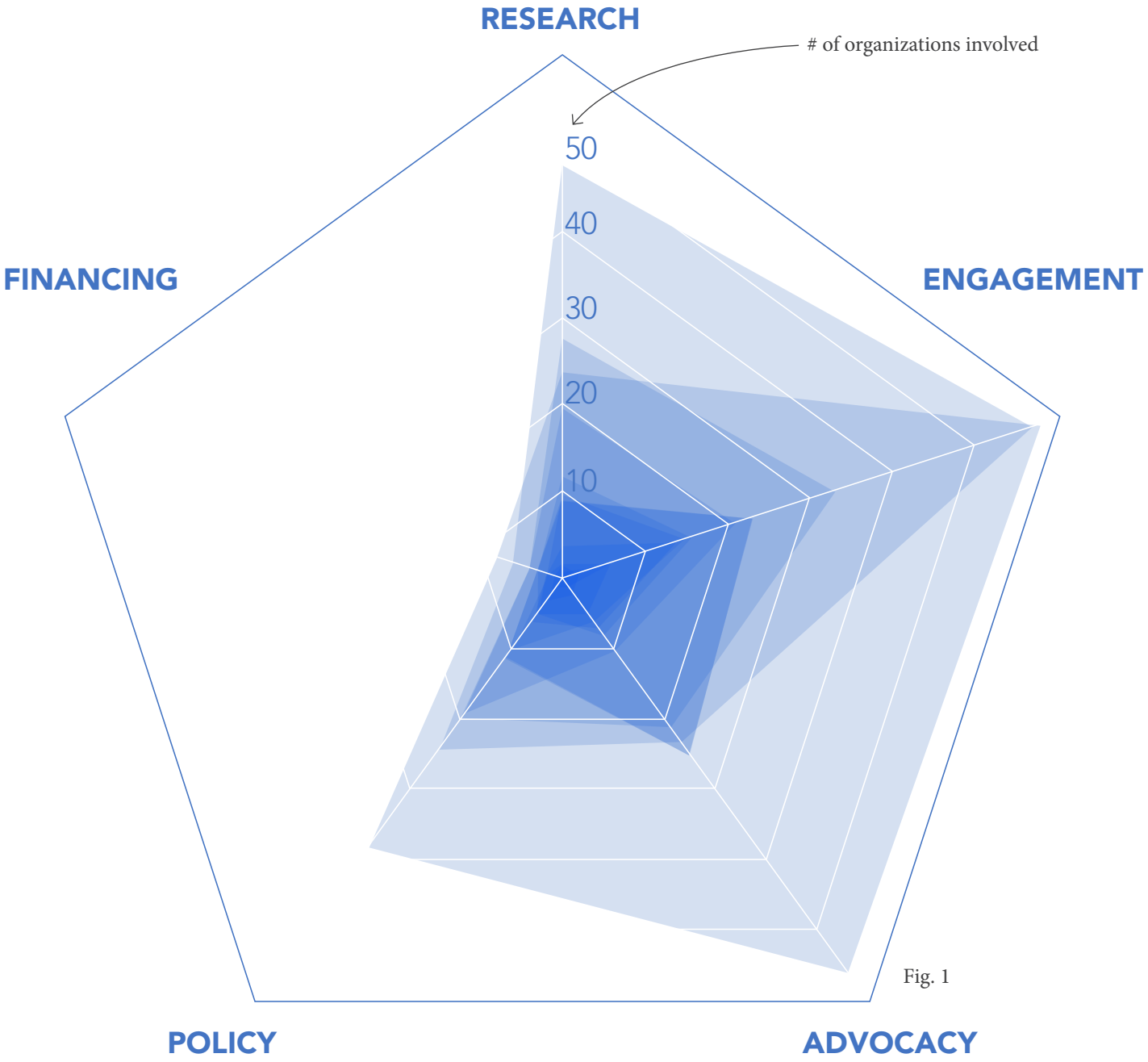
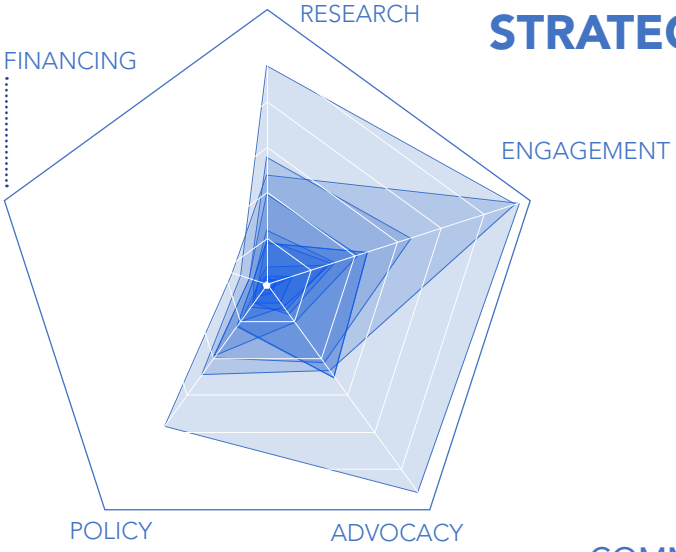
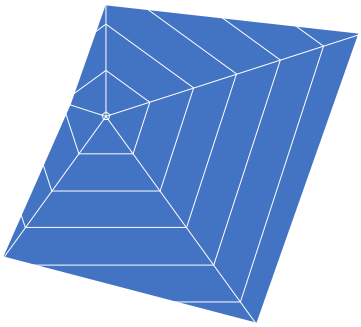


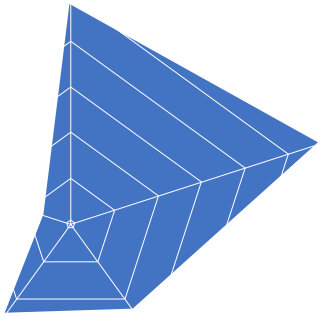
Fig. 1

STRATEGIES AND ISSUE AREAS



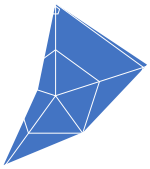


1
COMMUNITY ORGANIZING AND ADVOCACY



2
PUBLIC EDUCATION AND AWARENESS

3
STORMWATER MANAGEMENT PLANNING & IMPLEMENTATION

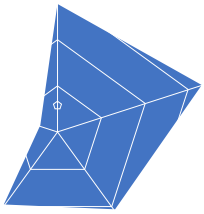


4
LAND USE, LAND SOVEREIGNTY, ZONING, AND WATERSHED PLANNING

5
HOUSING AFFORDABILITY, OWNERSHIP AND INSURABILITY

6
WORKFORCE AND SMALL BUSINESS DEVELOPMENT

7
ENVIRONMENTAL JUSTICE AND INDUSTRIAL / UTILITIES OVERSIGHT



8
COASTAL RESTORATION, ESTUARINE HEALTH, AND CONVERSATION/PRESERVATION

9
DISASTER PREPARATION, RECOVERY, AND COMMUNITY RESILIENCE

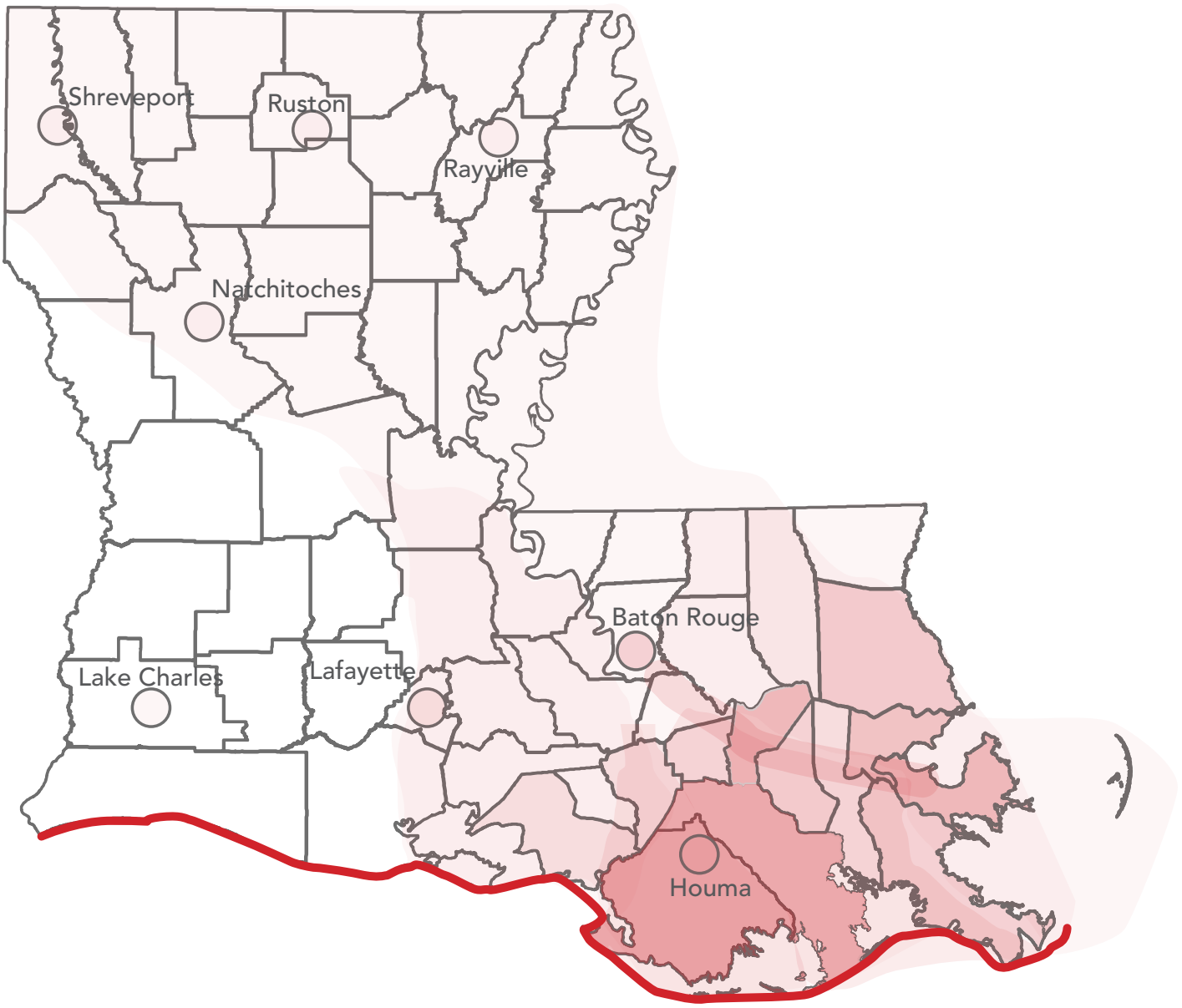
10
CULTURAL PRESERVATION AND ARTISTIC EXPRESSION

11
COMBATING CLIMATE CHANGE

Fig. 2

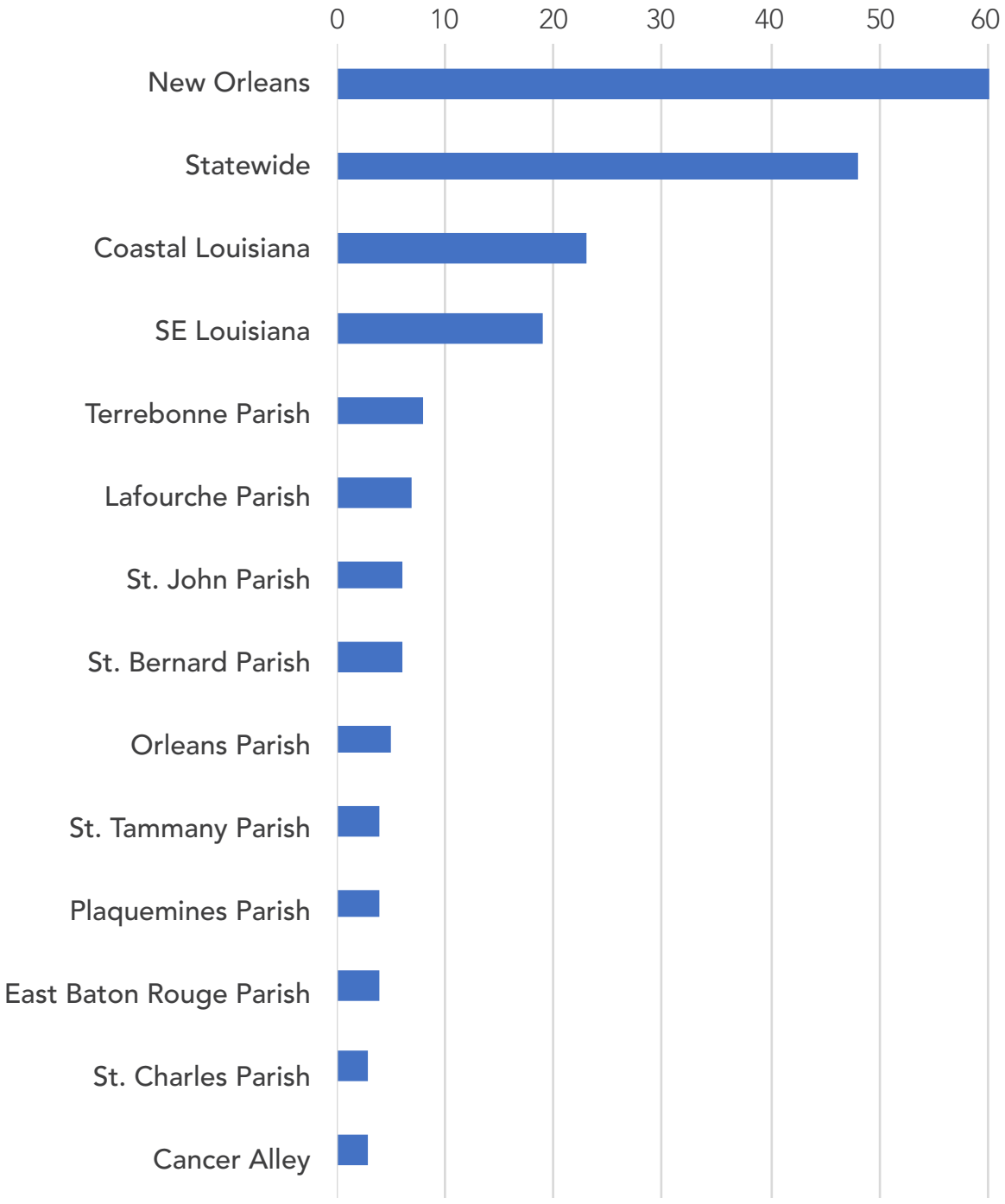
WHERE THE WORK IS BEING DONE

During the inventory, researchers categorized the location of the organizations' work. The analysis below excludes New Orleans and Louisiana as responses because those were disproportionate to other answers (60 and 48 organizations respectively). Excluding these responses allows the map to show more clearly where the strengths and challenges are beyond the largest city and state. The heat map overlays all the organizations' responses. The areas defined as Coastal and Southeast Louisiana were identified as the majority location the organizations' work takes place.



WHERE THE WORK IS BEING DONE

The bar graph below shows the number of organizations doing work in the respective locations including "New Orleans" and "Statewide". Locations that were mentioned only once or twice are not included.



The data illustrates that while many organizations are working across the state and in communities, there are both substantive and geographic gaps. Much of the work was categorized in organizing, advocacy, and education, with few organizations focused on financial interests. Also, the western and northern sections of Louisiana seem to have little organizational representation. This preliminary work provides a framework for future collaboration and research.

Organization	Primary Location of Work	Secondary Location of Work	Headquarters	Website
350 New Orleans	New Orleans	Southeast Louisiana, especially Cancer Alley		350neworleans.org
A Community Voice	New Orleans	Louisiana	New Orleans	acommunityvoice.org
A Studio in the Woods	Bottomwood Forest	National	New Orleans	astudiointhewoods.org
Alliance for Affordable Energy	Louisiana	National	New Orleans	all4energy.org
American Planning Association - Louisiana Chapter	Louisiana			louisianaplanning.com
Antenna (formerly known as Press Street)	New Orleans	Southeast Louisiana	New Orleans	antenna.works
Atchafalaya Basinkeeper	Atchafalaya Basin	Cypress Swamp	Plaquemine	basinkeeper.org
Audubon Nature Institute	Southeast Louisiana	Gulf Coast	New Orleans	audubonnatureinstitute.org
Bayou Interfaith Shared Community (BISCO)	Terrebonne and Lafourche Parishes		Thibodaux	bisco-la.org
Bayou Regional Arts Council	Six Parishes (Terrebonne, Lafourche, Assumption, St. James, St. John, and St. Charles)		Houma	bayouarts.org
Carmelite NGO	New Orleans	Global	New Orleans	carmelitengo.org
Central City Renaissance Alliance	Central City	New Orleans	New Orleans	www.myccra.org
City of NOLA - Behavioral Health Council	New Orleans	Greater New Orleans Area	New Orleans	nola.gov/health-department/behavioral-health/behavioral-health-council
City of NOLA - Office of Resilience and Sustainability	New Orleans	National	New Orleans	nola.gov/resilience
Climate Central	National	Global	Princeton, NJ	climatecentral.org

Organization	Primary Location of Work	Secondary Location of Work	Headquarters	Website
Climate Resilience Fund	National		Bainbridge, WA	climateresiliencefund.org
Coalition to Restore Coastal Louisiana	Coastal Louisiana	Louisiana	New Orleans	crcl.org
Coast Builders Coalition	Gulf Coast	National	Baton Rouge	coastbuilderscoalition.org
Coastal Communities Consulting	Southeast Louisiana		Gretna	ccc-nola.org
Committee for a Better New Orleans	New Orleans	Greater New Orleans Area	New Orleans	cbno.org
Concerned Citizens of St. John the Baptist Parish	St. John the Baptist Parish	Cancer Alley/ River Parishes	LaPlace	ccosj.com
Concordia	New Orleans	Global	New Orleans	concordia.com
CPEX (Center for Planning Excellence)	Louisiana	Global	Baton Rouge	cpex.org
CPRA (Coastal Protection and Restoration Authority)	Legally-defined coastal zone	Louisiana	Baton Rouge	coastal.la.gov
Data Center	Southeast Louisiana	Global	New Orleans	datacenterresearch.org
Deep South Center for Environmental Justice	New Orleans	Gulf South	New Orleans	dscej.org
Delgado Community College	New Orleans	Greater New Orleans Area	New Orleans	dcc.edu
Dillard University	New Orleans	S. Louisiana	New Orleans	dillard.edu
Docville Farm/ The Meraux Foundation	St. Bernard Parish	Louisiana	Violet	merauxfoundation.org/ docville-farm
Ellender Memorial High School	Houma	Terrebonne Parish	Houma	emh-tps-la.schoolloop.com
Environmental Defense Fund	Louisiana	National	Washington, D.C.	edf.org
Foundation for Louisiana	Louisiana		Baton Rouge	foundationforlouisiana.org
Friends of Lafitte Greenway	Lafitte Greenway	New Orleans	New Orleans	lafittegreenway.org

Organization	Primary Location of Work	Secondary Location of Work	Headquarters	Website
Fund for Our Economic Future	Northeast Ohio		Cleveland, OH	thefundneo.org
Georgetown Climate Center	National		Washington, D.C.	georgetownclimate.org
GNO Inc.	10-Parishs in SE Louisiana	National	New Orleans	gnoinc.org
GNOF (Greater New Orleans Foundation)	Six Parishes (Orleans, Jefferson, St. Bernard, Terrebonne, Lafourche, Plaquemines)	Twelve Parishes in Greater New Orleans	New Orleans	gnof.org
GNOHA (Greater New Orleans Housing Alliance)	metro NOLA	8 regional alliances	New Orleans	gnoha.org
Good Work Network	New Orleans	Louisiana	New Orleans	goodworknetwork.org
Governor's Office of Coastal Affairs	Coastal Zone	Louisiana	Baton Rouge	gov.louisiana.gov/page/governors-office-of-coastal-activities
Grand Bayou - Atakapa	Coastal LA	Global	Plaquemines Parish	fpclouisiana.org/our-communities/our-communities-grand-bayou
Green Army	Louisiana	Global		gogreenarmy.org
Green Coast Enterprises	New Orleans		New Orleans	greencoastenterprises.com
Green Light New Orleans	New Orleans	Greater New Orleans Area	New Orleans	greenlightneworleans.org
Grow Dat Youth Farm	New Orleans		New Orleans	growdatyouthfarm.org
Gulf Coast Center for Law and Policy	Gulf Coast	National	Slidell	gcclp.org
Gulf States Renewable Energy Industry Association	Gulf South		New Orleans	gsreia.org
Healthy Community Services	7th Ward of New Orleans	New Orleans	New Orleans	hcsnola.org
Healthy Gulf	Coastal LA	Gulf-wide	New Orleans	healthygulf.org
Housing NOLA	Orleans	assisting BR	New Orleans	housingnola.org/main/home
Institute of Women and Ethnic Studies	Louisiana	Global	New Orleans	iwesnola.org

Organization	Primary Location of Work	Secondary Location of Work	Headquarters	Website
Interaction Institute for Social Change	Boston	National	Boston, MA	interactioninstitute.org
ISeeChange	New Orleans	Global	N/A	iseechange.org
LA Sea Grant	LA Coastal Zone	Gulf Coast and other Sea Grant	Baton Rouge	laseagrant.org
Lafayette Middle School	Lafayette		Lafayette	lpssonline.com/lms
Lake Pontchartrain Basin Foundation	16 Parishs in Pontchartrain Basin		Metairie	saveourlake.org
Larry Sorapuru (STJBP councilmember)	St. John the Baptist Parish		LaPlace	sjbparish.com/gov_council.php
LifeCity	New Orleans	Greater NO	New Orleans	mylifecity.com
Louisiana Bucket Brigade	Cancer Alley	Louisiana	New Orleans	labucketbrigade.org
Louisiana Department of Culture, Recreation, Tourism	Louisiana	Global	Baton Rouge	crt.state.la.us/
Louisiana Economic Development	Louisiana	National	Baton Rouge	opportunitylouisiana.com
Louisiana Environmental Action Network	Louisiana		Baton Rouge	leanweb.org
Louisiana Environmental Education Commission	Louisiana		Baton Rouge	wlf.louisiana.gov/environmental-education-commission
Louisiana Floodplain Managers Association	Louisiana		N/A	lfma.org
Louisiana Green Corps	New Orleans	Greater NO	New Orleans	lagreencorps.org
Louisiana Municipal Association	Louisiana		Baton Rouge	lma.org/
Louisiana Public Health Institute	Louisiana		New Orleans	lphi.org/
Louisiana School for Math, Science, and the Arts	Natchitoches	Louisiana	Natchitoches	lsmsa.edu/
Louisiana Tech University	Ruston	Louisiana	Ruston	latech.edu/

Organization	Primary Location of Work	Secondary Location of Work	Headquarters	Website
Louisiana Wildlife Federation	Louisiana	National	Baton Rouge	lawildlifefed.org
Lower 9th Ward Center for Sustainable Engagement and Development	Lower 9th Ward of New Orleans	Gulf Coast	New Orleans	sustainthenine.org
LSU Ag Center	Louisiana		Baton Rouge	lsuagcenter.com
LSU College of the Coast and Environment	Northern Gulf Coast	Global	Baton Rouge	lsu.edu/cce/index.php
LUMCON (Louisiana University Marine Consortium)	Coastal Louisiana	Global	Chauvin	lumcon.edu
Mark Schleifstein (NOLA.com/New Orleans Advocate)	Louisiana		New Orleans	nola.com/users/profile/mark%20schleifstein/
Mary Queen of Vietnam - CDC	New Orleans East	SE Coastal Parishes	New Orleans	maryqueenvn.org
McNeese State University	Lake Charles	Louisiana	Lake Charles	mcneese.edu
NAACP (Baton Rouge branch)	Louisiana	National	Baton Rouge	naacpbr.org/main_page.html
National Oceanic and Atmospheric Administration - Office for Coastal Management	Coastal Areas throughout U.S.	National	Silver Spring, MD; Charleston, SC	coast.noaa.gov
National Wildlife Federation	Louisiana Coastal Zone	National	New Orleans	nwf.org
Nature Conservancy of Louisiana	Louisiana	Global	Baton Rouge	nature.org/louisiana
New Harmony High School	New Orleans	Southeastern Louisiana	New Orleans	newharmonyhigh.org
New Orleans Business Alliance	New Orleans	Louisiana	New Orleans	nolaba.org
New Orleans Video Access Center	New Orleans	Baton Rouge	New Orleans	novacvideo.org
New Orleans Workers Center for Racial Justice	New Orleans		New Orleans	nowcrj.org

Organization	Primary Location of Work	Secondary Location of Work	Headquarters	Website
NewCorp, Inc.	7 Parish - Orleans, Jefferson, St. Bernard, St. Charles, St. John, St. Tammany, and Plaquemines	Louisiana	New Orleans	newcorpinc.com
Nicholls State University	Barataria and Terrebonne Basins		Thibodaux	nicholls.edu/biology
No Waste Louisiana	Louisiana		N/A	nowastela.org
Northlake Nature Center	St. Tammany Parish	Southeastern Louisiana	Mandeville	northlakenature.org
Nunez Community College	St. Bernard Parish	St. Tammany and N.O. East	Chalmette	nunez.edu
Office of Community Development - Disaster Recovery Unit	Louisiana		Baton Rouge	doa.la.gov/Pages/ocd-dru/Index.aspx
Our School at Blair Grocery	Lower 9th Ward	New Orleans	New Orleans	ourschoolatblairgrocery.org
Peace by Piece New Orleans	New Orleans	National	New Orleans	afsc.org/office/new-orleans-la
Pointe-au-Chien Tribe	Terrebonne and Lafourche Parishes	Global	Montegut	pactribe.tripod.com/index.html
Port Fourchon	Coastal Louisiana		Cut Off	portfourchon.com
Power Coalition	Louisiana		New Orleans	powercoalition.org
Project South	Atlanta	11 Southern States (TX, AR, LA, TN, MS, AL, FL, GA, NC, SC, VA)	Atlanta, GA	projectsouth.org
Propeller	Orleans Parish	Coastal Parishes	New Orleans	gopropeller.org
Public Lab	Metro NO	Global	Providence, RI	publiclab.org/about

Organization	Primary Location of Work	Secondary Location of Work	Headquarters	Website
Regional Planning Commission	Eight Parishes in the Greater New Orleans Area (Orleans, Jefferson, St. Bernard, Plaquemines, St. Tammany, Tangipahoa, St. Charles, and St. John)	Louisiana	New Orleans	norpc.org
Rene Pastorek (STJBP planner)	St. John the Baptist Parish		LaPlace	sjbparish.com/zoning_index.php
Restore Louisiana Now (John Barry)	Louisiana		New Orleans	restorelouisiananow.org
Restore Mississippi River Delta	Southern Louisiana	National	N/A	mississippiriverdelta.org/
Restore or Retreat	Barataria and Terrebonne Basins		Thibodaux	restoreorretreat.org
Richland Parish Schools	Rayville	Louisiana	Rayville	richland.k12.la.us/
Ride New Orleans	New Orleans	Metro NO	New Orleans	rideneworleans.org/
RISE St. James	St. James Parish	Southeastern Louisiana	N/A	N/A
Rockefeller Foundation	Global		New York, NY	rockefellerfoundation.org/
SBP	New Orleans	United States	New Orleans	sbpusa.org/about-us
Shreveport Green	Shreveport		Shreveport	shreveportgreen.org
Sierra Club	Louisiana	National	New Orleans	sierraclub.org/louisiana
Solidarity Project Advocacy Network	Louisiana		N/A	spanlouisiana.org
South Louisiana Economic Council	4 Parishes (Assumption, Lafourche, St. Mary, Terrebonne)		Thibodaux	bayouregion.com
South Louisiana Wetlands Discovery Center	Terrebonne and Lafourche	South Louisiana	Houma	swldc.org

Organization	Primary Location of Work	Secondary Location of Work	Headquarters	Website
Southern University	Baton Rouge; New Orleans	Louisiana	Baton Rouge	subr.edu
Southwings	Louisiana	Gulf Coast	New Orleans	southwings.org
Step Up Louisiana	New Orleans	Louisiana	New Orleans	stepuplouisiana.org
Sustaining Our Urban Landscape	New Orleans		New Orleans	soulnola.org
Teaching Responsible Earth Education	Southeastern Louisiana		New Orleans	treetalk.org
Thrive New Orleans	New Orleans		New Orleans	thrivenola.org
Together Louisiana	Baton Rouge	Louisiana	Baton Rouge	togetherla.org
Trust for Public Land	United States	Global	Tallahasee, FL	tpl.org
Tulane Disaster Resilience Leadership Academy	New Orleans	Global	New Orleans	law.tulane.edu/clinics/environmental
Tulane Environmental Law Clinic	Greater New Orleans	Louisiana	New Orleans	law.tulane.edu/clincs/environmental
Tulane Institute on Water Law and Policy	Louisiana/ Mississippi River Basin	Global	New Orleans	tulanewater.org
ULL Blanco Public Policy Center	Lafayette	Louisiana	Lafayette	liberalarts.louisiana.edu/about-us/institutes-centers/blanco-public-policy-center
United Houma Nation	Terrebonne and Lafourche Parishes	St. Mary to St. Bernard Parishes	Golden Meadow	unitedhoumanation.org
University of Holy Cross	New Orleans	National	New Orleans	uhcno.edu
University of Louisiana Lafayette - Center for Louisiana Studies	Lafayette	Louisiana	Lafayette	louisianastudies.louisiana.edu
University of Louisiana Lafayette - Institute for Coastal and Water Research	Coastal Louisiana	National	Lafayette	coastalresearch.louisiana.edu
University of New Orleans	New Orleans	Global	New Orleans	www.uno.edu

Organization	Primary Location of Work	Secondary Location of Work	Headquarters	Website
UNO - CHART	New Orleans	Southeastern Louisiana	New Orleans	new.uno.edu/chart
UNO - Pontchartrain Institute for Environmental Science	New Orleans	Louisiana	New Orleans	uno.edu/pontchartrain-institute
UNO - Transportation Institute	New Orleans	Louisiana	New Orleans	new.uno.edu/academics/colaehd/la/centers-institutes-affiliates/transportation
Urban Conservancy	New Orleans		New Orleans	urbanconservancy.org
Urban Land Institute - Louisiana	Louisiana		New Orleans	louisiana.uli.org
VAYLA	New Orleans East	Southeastern Louisiana	New Orleans	vayla-no.org
Water Collaborative of Greater New Orleans	New Orleans		New Orleans	nolawater.org
Water Institute of the Gulf	Coastal Louisiana	Global	Baton Rouge	thewaterinstitute.org
Water Wise - Gulf South	New Orleans	Global	New Orleans	waterwisegulfsouth.org
WHIV	Metro New Orleans		New Orleans	whivfm.org
WWNO Coastal Desk	Southeast Louisiana		New Orleans	wwno.org/programs/coastal-desk
Zion Travelers Cooperative	East Plaquemines Parish	Southeast Louisiana	Phoenix	ziontcc.com/home

Biographies

Dr. Stephen R. Barnes - *Meeting 4*

Dr. Stephen R. Barnes is the founding director of the Kathleen Babineaux Blanco Public Policy Center. Barnes is a native of Baton Rouge. He completed an undergraduate degree in economics at LSU, and earned master's and doctoral degrees, both in economics, from the University of Texas at Austin. The Kathleen Babineaux Blanco Public Policy Center will issue policy papers that inform public discussions, and sponsor lectures and symposiums. In addition, it will house Blanco's gubernatorial papers. The 90 boxes of material she donated to UL Lafayette include documents that pertain to economic development and higher education, among other issues she championed as governor. The collection also chronicles her direction of recovery efforts after Hurricanes Katrina and Rita struck the state in August and September 2005.

Roberto Barrios - *Meeting 2*

Roberto E. Barrios is an associate professor of anthropology at Southern Illinois University in Carbondale. Since 1996, he has conducted research on population displacement and resettlement, with a specific focus on the practices through which people recreate a sense of place, community, and recovery after a traumatic event. Through this work, he has made a number of significant contributions to the ways anthropologists theorize and document the relationships between government/aid agencies, expert knowledge, and displaced populations that either perpetuate the undesired social effects of catastrophes and complex emergencies, or enable affected populations in their efforts to reconstruct their lives. Specifically, his research has shed light on the ways expert knowledge and knowledge-making (market-based analyses, budgets as mechanisms of reconstruction project assessment, modernist/neoliberal planning) are often heralded by aid program managers, governmental officials, and professional planners as universally relevant means of helping displaced populations recover from a traumatic event, and how these forms of knowledge often articulate implicit assumptions about the nature of social wellbeing, people, and communities. Moreover, his work also demonstrates how these assumptions do not always neatly map onto – and sometimes threaten to disrupt – the ways affected populations socially produce the spaces and times they live in, and the ways displaced populations shape their dispositions, sensibilities, and identities over the course of life experiences in such space-times. Consequently, his work makes the case that recovery is experienced as a sentiment by displaced populations, that these sentiments have locality-contingent histories, and that aid agencies and governments must be sensitive to the socio-material arrangements that allow survivors of disasters and complex emergencies to experience such sentiments.

Jainey Bavishi - *Meeting 1*

Jainey K. Bavishi currently serves as the Director of the NYC Mayor's Office of Recovery and Resiliency and Deputy Chief Resilience Officer, where she leads the City's OneNYC resiliency program, preparing the city for the impacts of climate change and other 21st century threats. Jainey most recently served as the Associate Director for Climate Preparedness at the White House Council on Environmental Quality. In this role, she led the implementation of the climate preparedness pillar of the President's Climate Action Plan. In the final year of the Obama Administration, she was responsible for embedding and institutionalizing climate resilience considerations across Federal programs and policies; advancing climate equity to address the disproportionate impacts of climate change on low-income and other vulnerable communities; and developing innovative approaches to climate adaptation finance.

Prior to this, Jainey served as the Executive Director of R3ADY Asia-Pacific based in Honolulu, Hawaii, where she was responsible for initiating, expanding and managing the start-up public-private partnership, which focused on enhancing disaster risk reduction and resilience in the Asia-Pacific region. Previously, she served as the Director of External Affairs and Senior Policy Advisor to the Administrator at the National Oceanic and Atmospheric Administration (NOAA) in Washington, DC. She was also the Founding Director of the Equity and Inclusion Campaign, a coalition of community-based leaders in the Gulf Coast region that focused on recovery from Hurricanes Katrina, Rita, Gustav and Ike, at the Louisiana Disaster Recovery Foundation. Jainey has a Master's degree in city planning from the Massachusetts Institute of Technology and Bachelor's degree in public policy and cultural anthropology from Duke University.

Isabel Beltran - *Meeting 3*

Isabel Beltrán joined 100RC after over 10 years of experience in international development. Prior to 100RC, she worked at the World Bank in Washington D.C. – in both the Research Group and the Bank's Development Impact Evaluation Initiative. She contributed to the design and implementation of impact evaluations in Africa and Asia. She also worked at the Inter-American Development Bank (IDB) where she developed extensive expertise in Latin America. As part of the IDB's Young Professionals program, Isabel spent one year in Peru working with the IDB's Country Director in the development of the Country Strategy. She also spent four years in the Emerging and Sustainable Cities Initiative of the IDB in Washington D.C., working with local governments to develop multi-sector sustainable action plans, defining interventions, prioritization processes, and defining possible funding sources.

Beltran holds a Master's in Public Administration from the Maxwell School of Citizenship and Public Affairs at Syracuse University and both a Bachelor's degree and Master's degree in Economics from the Catholic University in Ecuador. She is a native Spanish speaker.

Steven Bingler - *Meetings 1-4*

Steven Bingler is the founder and CEO of Concordia, a community-centered engagement, planning and architectural co-design studio in New Orleans, Louisiana. Concordia, from the Latin word meaning agreement between people and harmony among things, is also the firm's one-word mission statement.

The Concordia studio explores its mission in several ways, including research collaborations with universities (Stanford University's Global Project Center, MIT's Media Lab, and Harvard's Project Zero), governmental agencies (U.S. Department of Education and National Aeronautics and Space Administration) and through a diverse network of collaborations with community-based organizations.

Steven is included in Wikipedia's roster of internationally acclaimed urban planners. His manuscripts and research papers have been published in books and journals on urban planning, architectural design, education, public health and smart growth. His work has received support from the Ford, Rockefeller, Bill and Melinda Gates, Wallace, Prudential, George Lucas, Irvine, and William Penn Foundations, and the Philadelphia Education Fund. Concordia's award-winning education, cultural, housing, and recreation projects have appeared in Newsweek, New York Times, Los Angeles Times, USA Today, the Wall Street Journal, Metropolis, Architecture and Architectural Digest.

Steven is also a musician and naturalist who grew up in a working-class family in Charlottesville, Virginia where he was one of the first in his family to graduate from high school. He received his architectural training at the University of Virginia, where he is a member of the school's prestigious Raven Society. In 2014 he co-authored an Op Ed for the New York Times with architectural critic Martin Pedersen, advocating for a realignment of contemporary planning and design practices around more design equity and inclusionary practices, which led to the creation of the Common Edge Collaborative (commonedge.org).

Donald Bogen, Jr. - *Meetings 2, 4*

Elder Donald Bogen, Jr., certified Professional Community Organizer and Co-Director of BISCO. Bogen was the key organizer for the community's Gulf oil spill prayer service in which 20 interfaith pastors participated with 400 people in attendance. Additionally, Bogen is a licensed minister of the Christian Church of God in Christ and the Executive Director of Masterbuilders Community Center. Bogen has received numerous accolades throughout his career, including the Certificate of Congressional Recognition from Rep. Charlie Melancon and a Certificate of Achievement from the Federal Emergency Management Agency. As a Lafourche and Terrebonne organizer his areas of expertise includes Housing, Youth Development, Church and Ministerial Relations, and Disaster Relief and Recovery.

Stuart Brown - *Meeting 2*

Stuart Brown leads the Strategic Planning section of the Louisiana Coastal Protection and Restoration Authority (CPRA). Stuart has been with CPRA for seven years during which time he has managed and advised on a range of coastal restoration programs and projects. Prior to joining CPRA, he worked for American Rivers in California and the National Park Service in Wyoming. Stuart holds a Bachelors in Environmental Science from Gettysburg College and a Masters in Coastal Environmental Management from Duke University.

Sam Carter - *Meetings 1, 3*

Sam Carter is a Founding Principal of Resilient Cities Catalyst (RCC). In this role, he serves as RCC's lead on climate and urban transformation, and leads several strategic partnerships, including the Resilience Accelerator with Columbia University's Center for Resilient Cities and Landscapes and The Rockefeller Foundation, and the Southern California Resilience Initiative with the Conrad N. Hilton Foundation.

Sam was a leader at 100 Resilient Cities where he served on the Executive Team and developed the Resilience Accelerator as a program supporting eight 100RC cities across the globe. Prior to that, he served as Managing Director leading the ResilienceTeam at The Rockefeller Foundation. In that role he led the Foundation's partnership with the US Department of Housing and Urban Development on the National Disaster Resilience Competition, as well as its work in the New York region post Sandy and in the Louisiana state ongoing long term recovery efforts. He also served as an advisor on the Global Resilience Partnership, a collaboration with DFID and USAID to connect humanitarian response to long term planning to improve the strength of communities and reduce repetitive losses.

In 2007, Sam helped to establish the Institute for Public Knowledge at New York University, where he served as Associate Director and managed the research phase of Rebuild by Design. Prior to working at the IPK, Mr. Carter worked as Program Coordinator for the President's Office of the Social Science Research Council, where he coordinated the SSRC Katrina Task Force and developed two books for the Privatization of Risk Series with Columbia University Press.Sam holds an MPA in Public and Nonprofit Management from the Robert F. Wagner School for Public Service at NYU and a BA in Media Ecology from the Gallatin School of Individualized Study at NYU.

J. Mijin Cha - *Meeting 4*

J. Mijin Cha is an expert in environmental justice, climate change, and economic and political equality. She is an Assistant Professor, Urban and Environmental Policy at Occidental College. Mijin's research and teaching interests are in the areas of climate justice, environmental justice, labor movements, and the intersection of labor and climate justice.

Her current research agenda focuses on "just transition" - how to transition communities and workers economically dependent upon fossil fuel extraction and use into a low-carbon future in a way that is equitable and just. Previously, she was Associate Director of the Equity as a Superior Growth Model program at PolicyLink. Before that, she was at Demos, where she authored several reports on money in politics, voting reforms, and new measures of economic progress. Mijin holds JD, LLM, and Ph.D. degrees.

Angela Chalk - *Meeting 2*

Angela M. Chalk is a 4th generation 7th Ward resident. As she puts it, "I'm proud to say I live in a house that my Grandpa won in a card game in 1942." The legacy her family instilled in her is to remain committed spiritually to God and to do right by her neighbors and the community. Currently, she serves as President 2017-2018 for the Louisiana Public Health Association; former Secretary of the 5th District Police Community Advisory Board, (PCAB); a Foundation for Louisiana LEAD to the COAST Cohort Fellow; a Global Green Water Wise Champion Designee; and is Executive Director of Healthy Community Services, a non-profit organization she founded in order educate residents and improve health outcomes regarding the social determinants of health. Healthy Community Services is a community-based outreach and health education provider.

Ms. Chalk is a neighborhood advocate and educator, teaching neighbors about incorporating Green Infrastructure solutions to reduce street flooding. She works closely with Global Green, USA and Water Wise. Her goal is to improve the quality of life for the residents of her community by her desire to serve, whether it is informing neighbors and residents about Green Infrastructure, working with the homeless, reducing crime, providing access to healthy food sources or increasing awareness about public health issues that affect residents. Ms. Chalk also serves on the Board of the Treme'/7th Ward Cultural District.

Ms. Chalk recently retired from the Louisiana Department of Health & Hospital after 31 years of service and served as Team Leader for "Healthy Louisiana." She also served as the New Orleans Regional Medicaid Outreach Coordinator where she enrolled uninsured children to the Louisiana Children's Health Insurance Program, (LaCHIP). Angela also represented the LA DHH in conjunctions with the United States Department Housing and Urban Development as the liaison for the "New Orleans: Dedicated to Ending Homelessness" program, providing Medicaid enrollment for homeless populations.

Ly Chan - *Meeting 2*

Ly Chan has been a resident of the United States since 1984, when she moved from Cambodia, and currently resides in Buras, Louisiana. Before living in Buras, Ly lived in Virginia where she served as the music leader for a worship team that allowed her to bring gospel song to others who spoke Khmer in her community. During this time, she also served as the Camp Director for East Coast Family Retreat Camping for 5 years. Since moving to Louisiana three years ago, Ly has established several avenues of expertise. She has been the captain of her own shrimp boat for two years and has become a recognized leader in her community. In LA SAFE Ly was critical in recruiting members of her community and addressing barriers related to language access by translating technical information into accessible words and phrases in Khmer.

Andrea Chen - *Meetings 1, 4*

Andrea Chen is the Co-Founder and Executive Director of Propeller: A Force for Social Innovation, a nonprofit organization dedicated to supporting social innovation in New Orleans. Founded in 2009, Propeller grows and supports entrepreneurs to tackle social and environmental disparities in the areas of water, food, health, and education. Since founding, Propeller has accelerated over 130+ ventures that have generated over $74mm in revenue and financing and operates a 10,000 s.f. co-working office space for entrepreneurs. Prior to joining Propeller, Ms. Chen worked at the Louisiana Association of Public Charter Schools where she oversaw grant making for over $5 million in charter school startup funds and launched a loan fund. She was named a 2016 Business Person of the Year by Biz New Orleans, "40 Under 40" by Gambit Magazine, 2010 City Business Women of the Year, and serves on the boards of Public Lab and Bureau of Governmental Research. She graduated from Stanford University, attended Harvard Graduate School of Education and the University of New Orleans, and was trained in business at Dartmouth University's Tuck School of Business.

Caressa Chester - *Meeting 2*

Caressa Chester supports the Coastal Community Resilience Program by assisting with the program's increasing number of planning and outreach efforts and the continuous development of Coastal Resiliency Leverage Fund. In providing administrative support, she aids in the capacity and reach of the Foundation's efforts to serve and empower coastal communities. Caressa is passionate about addressing the ways that environmental destruction continues to marginalize those that are already vulnerable. By addressing inequity at its root, she believes we can strategize about the future with community at the forefront. Caressa has a variety of experience in environmental work from non-profits, teaching, and via an independent business. She believes that nature is a space of healing, empowerment and wellbeing, and is interested in all of the ways appreciation for, preservation of, and adaptation with water and land can be achieved. Caressa comes to us from Bricolage Academy in New Orleans, where she served as the Garden Program Coordinator and Teacher. In this role, she kick-started Bricolage's new school garden, which worked to help students understand the connection between nature, art, science and food. Caressa previously served as the Major Gifts Assistant at Center for Biological Diversity in Tucson, Ariz. She has a Bachelor of Arts in international studies from the University of Arizona.

Steve Cochran - *Meetings 1, 3, 4*

Steve Cochran is the Campaign Director, Restore the Mississippi River Delta and Associate Vice President, Coastal Resilience, Environmental Defense Fund. A critical element of that work is to restore the natural function of the Mississippi River – in essence reconnecting the river to the delta it created. This restoration is an essential step in protecting and restoring the coast of south Louisiana and addressing the needs and health of the area's diverse communities and economy.

Steve also leads EDF's work to apply efforts learned in Louisiana to other coastal areas around the country, which are increasingly seeing the same sets of challenges as sea level rise increases.

Previously, Steve was vice president of EDF's climate and air program, executive vice president of the Environmental Defense Action Fund (EDAF), political director of EDAF's Political Action Committee and director of EDF's national climate campaign. Steve also spent seven years with Louisiana Congressman and then Governor Buddy Roemer as his legislative director in D.C., field director and ultimately chief of staff to the governor. Steve has also served as executive director of the Lake Pontchartrain Basin Foundation.

Joyce Coffee - *Meetings 2, 3*

Joyce Coffee , LEED AP, founder and president of Climate Resilience Consulting, works with leaders to create strategies that protect and enhance markets and livelihoods through adaptation to climate change. Clients include the World Bank, The Rockefeller Foundation, the Kresge Foundation, Resilient by Design, Enterprise Community Partners, The Institute for Sustainable Communities, Transportation Research Board, the Institute for Building Technology and Safety, Regional Plan Association, Perkins + Will, National League of Cities and Winrock International.
She has over 20 years of domestic and international experience in the corporate, government and non-profit sectors implementing resilience and sustainability strategies, management systems, performance measurement, partnerships, benchmarking and reporting. Prior experience includes USAID's US-Asia Environmental Partnership (Asia and Washington), the World Bank (Vietnam), MWH (Chicago and Egypt), Farr Associates Architecture and Urban Design (Chicago), Chicago Climate Action Plan at the City of Chicago, Edelman, Notre Dame Global Adaptation Initiative, ND-GAIN.

Joyce is a Senior Sustainability Fellow at the Global Institute of Sustainability and advises various high level resilience groups, including the Resilience Brokers Programme, the Global Adaptation and Resilience Investment work group, the American Society of Adaptation Professionals, the Anthropocene Alliance, the US Green Building Council Illinois Chapter, The Climate Service, MIT CoLab, and the National Science Foundation's Urban Resilience to Extremes Sustainability Research Network.

She received a B.S. in biology, environmental studies and Asian studies from Tufts University and a Masters in city planning from the Massachusetts Institute of Technology. She is the author of the Climate Adaptation Exchange Blog.

Flozell Daniels, Jr. - *Meetings 1-4*

Flozell Daniels, Jr., CEO & President of Foundation for Louisiana, is a public policy and community engagement strategist with expertise in community development, resilience building, legislative strategy, and leadership development. With a focus on building successful coalitions that increase success in expanding economic opportunity for all, Flozell is accomplished in expanding capacity in areas that include community development finance, criminal justice reform, coastal and environmental policy, and transit equity. Flozell has led more than $50 million of award-winning community investment strategies while at the Foundation.

Prior to his appointment at the Foundation, Flozell served as Tulane University's Assistant Vice-President & Executive Director of State and Local Affairs. Before that, he cut his public policy and community engagement teeth as an Urban Policy Specialist & Administrative Assistant in the Office of the Mayor for the City of New Orleans.

In his civic capacity, Flozell currently serves as Ex-officio & Policy Committee Chair of the Urban League of Greater New Orleans Board of Directors, where he was honored with the first-ever Distinguished Service Award for board leadership after serving five years as the post-Katrina Chair leading critical recovery efforts. Flozell is also a founding member and Board Chairman of the Orleans Public Education Network; a founding member of the Greater New Orleans Funders Network; and an advisory member of the ResilienceNOLA/100 Resilient Cities Initiative.

Flozell has an MBA from Tulane University and a BA in Biological Sciences from the University of New Orleans. A New Orleans native, Flozell has a daughter, and spends free time enjoying second lines, festivals, and other celebrations of Louisiana's amazing culture.

Bradford Davy - *Meeting 4*

Bradford Davy is the Director of Regional Engagement at the Fund's Growth & Opportunity. He's work is to spread the framework across the region has he connects with key stakeholders, from neighborhood-based leaders to regional civic actors in the state of Ohio and beyond, to adapt and align economic development strategies to meet community needs and drive a persistent focus on systemic racial inclusion. Previously representing a local manufacturing firm on the international stage, Bradford continues to travel in his free time and finds joy in experiencing the richness of other cultures. He's an avid lover of cities and a committed urbanist. On the weekends, you can find him watching English soccer or enjoying a night out.

Allison DeJong - *Meeting 4*

Allison DeJong, AICP is a planner for the Water Institute of the Gulf, where she supports people and communities adapting to climate change using frameworks and approaches from urban planning and economics. She has over ten years of experience in planning and policy advocacy, working across disciplines to achieve material gains for coastal residents, businesses, and communities.

DeJong joined the Institute after three years as Senior Water Manager for Propeller in New Orleans, where she worked with small businesses in the coastal and storm water sectors to define their market opportunities, increase revenue and contracts, and grow their social and environmental impact. Prior to that role, she spent nearly six years as a planner at GCR, Inc., in New Orleans, where she was a key member of the community resilience team that worked with states and municipalities to secure $240 million in funding from HUD's National Disaster Resilience Competition. She developed benefit-cost analyses for those proposals and created analyses of demographic and labor statistics for a wide range of plans and studies, including public transit, economic development, and small area plans. She also co-authored and developed facilitation plans for the City of New Orleans' first-ever economic development strategy, ProsperityNOLA. She began her career in New Orleans supporting nonprofits with database management and policy advocacy work in food systems.

DeJong holds a bachelor's in economics from University of Notre Dame and a master's in business administration from Louisiana State University. She is certified by the American Institute of Certified Planners.

Elaine "Ella" Delio - *Meetings 1, 2*

Elaine "Ella" Delio joined the staff of the Greater New Orleans Foundation as director of Environmental and Regional Initiatives in September 2014. Previously, she was executive vice president and managing partner at Savior Media, a Boston-based strategic communications firm. Prior to that role, Ella worked in Washington, D.C., at the World Resources Institute, an environmental think tank, where she served as Global Director of the New Ventures program. In that role, she provided business development and investment facilitation services to innovative environmental enterprises in Brazil, China, Colombia, India, Indonesia, and Mexico. She co-led the development of the program's five-year strategic plan, and she helped build the Green Investor Network in India, a group of investors interested in funding environmental entrepreneurs. In this capacity, she also worked with various funders from the philanthropic and public sectors.

Ms. Delio received her MBA and MPA degrees from the Harvard Business School and Harvard Kennedy School and her Management Engineering and Economics degrees from the Ateneo de Manila University in the Philippines. She was awarded the Don K. Price Award by the Harvard Kennedy School for academic distinction and leadership in public service.

Justin Ehrenwerth - *Meeting 2*

Justin R. Ehrenwerth took the helm as President and CEO of The Water Institute of the Gulf in early 2017. Ehrenwerth served as the Executive Director of the Gulf Coast Ecosystem Restoration Council created in the aftermath of the BP Deepwater Horizon oil spill. The Council is comprised of the Governors of five Gulf Coast States and Secretaries from six Federal agencies. Ehrenwerth successfully established the Council as the newest independent agency in the Federal government. Prior to joining the Council, Ehrenwerth served as Chief of Staff to the U.S. Deputy Secretary of Commerce where he assisted the Secretary and Deputy Secretary. Ehrenwerth focused on strategic opportunities and management challenges facing the National Oceanic and Atmospheric Administration (NOAA) and the International Trade Administration.

Previously, Ehrenwerth served as Assistant Counsel to the President where he took the lead on Deepwater Horizon litigation for the White House working with the Department of Justice. He also served as a member of the Oversight and Litigation group representing the White House in Congressional investigations and advising Federal agencies on oversight matters. He has been active in the non-profit sector having worked at the University of Pittsburgh Institute of Politics and the Northern California Grantmakers. He currently serves on the Board of Directors of the Coro Center for Civic Leadership. Ehrenwerth is a summa cum laude graduate of Colby College and holds an MA in philosophy, politics and economics from the University of Oxford and a J.D. from the University of Pennsylvania Law School.

Andrew Eickmann - *Meeting 2*

Andrew Eickmann is the Chief of Staff for New York City's Office of Recovery and Resiliency (ORR), providing strategic and operational leadership to the Office as it carries out its mission to strengthen social and economic resiliency; upgrade buildings; adapt the region's infrastructure systems; and enhance the city's coastal defenses in response to the evolving risks associated with climate change and other 21st century threats.

In various roles as a policy analyst, developer of affordable housing, and designer of human-centered public services, Andrew has worked to promote the development of sustainable, equitable, and resilient communities. At the NYC Department of Housing Preservation and Development (HPD), Andrew led a multi-agency community engagement and planning process with the residents of Edgemere, Queens – a low-lying coastal neighborhood badly damaged in Hurricane Sandy. The resulting Resilient Edgemere Community Plan articulates strategies to protect the neighborhood from future storms and coastal erosion while investing in affordable housing and lays out 60 concrete projects to achieve these goals over the coming 10 years.

Andrew holds a Master of Urban Studies degree from Portland State University (in his home town of Portland, Oregon) and a Bachelor of Arts in Sociology from the Robert D. Clark Honors College at the University of Oregon.

Monica Farris - *Meetings 2-4*

Monica Farris, PhD, CFM is an Associate Professor-Research and the Director of the Center for Hazards Assessment, Response and Technology (CHART) at The University of New Orleans (UNO). She earned her MA degree from Louisiana State University and PhD degree from the University of New Orleans, both in Political Science, the latter with a public administration/public policy specialization.

Dr. Farris has over fifteen years of experience in multidisciplinary research focused on a variety of topics related to building/enhancing hazard resilient communities. Her current applied research includes the examination of local repetitive flood loss data to assist communities in the identification of appropriate mitigation strategies; statewide hazard mitigation planning; regional adaptation planning; and education and outreach focusing on disaster resilience.

Dr. Farris has published on the subject of building internal capacity for disaster resilience and has presented multiple times on hazard risk reduction and disaster planning. She is a Certified Floodplain Manager and is a member of both the Louisiana Floodplain Managers Association and the Association of State Floodplain Managers.

Dakota Fisher - *Meetings 1, 2*

As a member of the Office of Community Development's resilience team, Dakota operates as a project manager for Louisiana's Strategic Adaptations for Future Environments (LA SAFE) and a lead planner for the Resettlement of Isle de Jean Charles. These projects exist by means of a $92.6 million grant awarded to the State of Louisiana as a result of OCD's efforts during the National Disaster Resilience Competition (NDRC). Dakota directly advises the Resilience Policy and Program Administrator, as well as OCD's executive leadership, on Louisiana's $16 billion disaster recovery portfolio, specifically as programs and policies may be tailored to account for future disaster risk and the incorporation of resilience-building adaptation strategies.

Dakota holds a master's degree in Urban and Regional Planning from the University of New Orleans and a bachelor's degree in Sociology with a minor in Geography from Louisiana State University. He is an active member of the American Planning Association, Urban and Regional Information Systems Association and the United States Green Building Council.

Patrick Forbes - *Meeting 2*

Office of Community Development Executive Director Pat Forbes oversees the state's Community Development Block Grant programs funded by HUD. Forbes' oversight includes housing, economic development and infrastructure programs for recovery from hurricanes Katrina, Rita, Gustav, Ike and Isaac, and the 2016 floods.

Previously, Forbes managed the Louisiana Recovery Authority's infrastructure section. Before Hurricane Katrina, he served as an engineer in the Governor's Office of Coastal Activities. Prior to his state service, Forbes worked as a consulting environmental engineer, owned and operated his own company and worked at Georgia Pacific's Port Hudson paper mill. Forbes earned a bachelor's degree in mechanical engineering and master's degree in business administration from Louisiana State University in Baton Rouge.

Jonathan Foret - *Meetings 2, 4*

Jonathan Foret is the Executive Director of the South Louisiana Wetlands Discovery Center. Jonathan is responsible for the day to day operations of the organization and implementing the programs of the Wetlands Discovery Center.

He has over 10 years of nonprofit administrative, management and fundraising experience on international, national, state, regional and local levels. He holds a Master degree in Public Administration with a focus in Nonprofit Leadership and is a native of Chauvin, Louisiana.

Andrea Galinski - *Meeting 2*

Andrea Galinski is a Coastal Resources Scientist working in the Strategic Planning Section of the Coastal Protection and Restoration Authority (CPRA). For the past six years, Andrea's work has focused on the development of the Coastal Master Plan (2012 and 2017), the State's guiding plan for the protection and restoration of the Louisiana coast. As part of her planning work, she holds expertise in the development of CPRA's Flood Risk and Resilience Program, which focuses on increasing flood risk awareness, implementing nonstructural projects, and supporting policies that promote greater resilience across the coast. Prior to state coastal planning, Andrea has also worked at Louisiana State University as an adjunct faculty in the Robert Reich School of Landscape Architecture and School of Architecture. Andrea received a Master of Landscape Architecture from Louisiana State University and a transdisciplinary Bachelor of Philosophy degree in "Human Ecology" from Penn State University. She currently lives in Baton Rouge with her husband, two young children, dog, two cats, and a revolving flock of suburban chickens.

Ashleigh Gardere - *Meeting 4*

Ashleigh Gardere serves as Executive Vice President & Chief Operating Officer at the New Orleans Business Alliance (NOLABA). She is responsible for the implementation of a new business model for economic development. In partnership with NOLABA President & CEO Quentin Messer, Ashleigh is demonstrating the power of a holistic economic development strategy that fully maximizes opportunity for the people and businesses of New Orleans.

Ashleigh most recently served as a Senior Advisor to Mayor Mitch Landrieu. In this role, she managed the Mayor's Economic Opportunity Strategy and supported the revitalization of the Claiborne Corridor through a cross-sector initiative called The Network for Economic Opportunity. The Network was responsible for the start-up, development, implementation and management of productive partnerships among local industries, small businesses, residents, non-profits and city agencies to drive long-term revitalization. By integrating The Network's portfolio within NOLABA, Gardere expects to prove that an inclusive economy best ensures a thriving, sustainable economy for New Orleans.

Gardere previously served as Vice President of Community Relations at Chase Bank for Louisiana. During her tenure, she piloted the firm's place-based neighborhood revitalization strategy. Gardere began her career working in various strategic planning and policy development roles supporting the work of local and national nonprofit organizations with community development-oriented missions. A New Orleans native, Gardere earned a B.A. in metropolitan studies from New York University and a master's degree in public policy from the Kennedy School of Government at Harvard University. She is the proud wife of Lamar and mother to Jayden and Justin Gardere.

Lamar Gardere - *Meeting 4*

Lamar Gardere is Executive Director of The Data Center, responsible for guiding Center's mission of democratizing data into realistic action, ensuring quality standards and the ongoing impact of the organization. In addition, he is responsible for leading The Data Center's ongoing efforts to transform local culture to one that embraces data as an intrinsic component of sound decision making.

Lamar joined The Data Center after six years with the City of New Orleans Office of Information Technology and Innovation, most recently as the Chief Information Officer. He is nationally recognized for his work implementing and developing the open data policy for the City of New Orleans. This work facilitated release and upkeep of many of the City's most valuable datasets and led to the development of extensive data sharing resources, now available through the City of New Orleans' Open Data portal.
In the years directly preceding his service with the City of New Orleans, Lamar owned and operated a manufacturing business where he gained an appreciation for maximizing budgets, responding to market pressures, and managing teams of people towards more efficient operations. Earlier years were spent as a research scientist with Georgia Tech and with Intel Corporation's research division, developing solutions for the challenges associated with an increasingly mobile, connected and computationally rich society. A New Orleans native, Lamar earned a Master of Science in Computer Science degree, with concentrations in Ubiquitous Computing, Networking and Graphics, from the Georgia Institute of Technology. He also holds a Bachelor of Science in Computer Science degree from Xavier University of Louisiana.

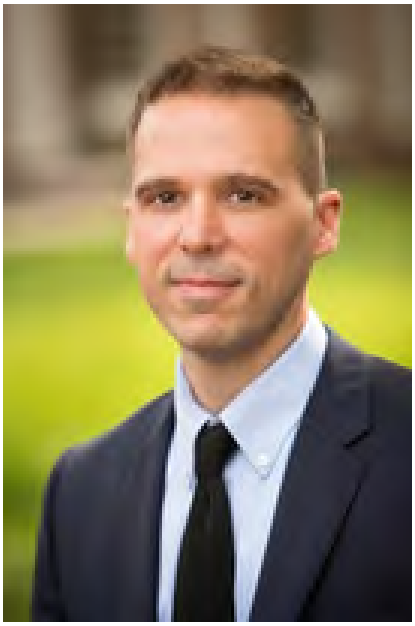
Kelisha Garrett - *Meeting 4*

Kelisha Garrett is the Principal Consultant at Gen-X Consulting Group, a firm focused in business development, strategic sourcing and vendor compliance management; the Executive Director of the New Orleans Regional Black Chamber of Commerce which covers a 10 parish region in southern Louisiana and the Executive Director of the Louisiana Chamber of Commerce Foundation. In addition, she is a licensed Realtor in the State of Louisiana.

Kelisha received her MBA from the University of Phoenix in April of 2007, a B.S. in Bus. Administration and nursing license in 1998. In the onset of her career, she worked as the Dir. of Business Development for Drug Research Services, a Legal Nurse Consultant, and as a staff nurse. She then obtained her Series 7, 66, and Insurance license working as a Financial Advisor with Merrill Lynch. Subsequently, Kelisha worked as Dir. of Public Relations / Special Projects for Kristin Palmer, New Orleans City Councilmember District "C". Most recently, Kelisha was a part of the Supplier Diversity management team for Caesars Entertainment in the Gulf South region and the DBE Regulatory Compliance & Community Relations Mgr. for Harrah's New Orleans Casino & Hotel.

Galit Gun - *Meetings 3, 4*

Galit Gun has expertise in social impact, philanthropy, and campaign strategy. For the past 10 years, Galit has led successful campaigns in the US, Europe, Latin America and the Middle East. She is also an experienced trainer, facilitator and speaker on the subject of movement-building and campaigning. As a Senior Director of Strategy and head of the Philanthropy Practice at Purpose, she works with many of the world's leading foundations and their grantees to rethink their participation strategy and maximize impact. Prior to joining Purpose, Galit helped launch and served as Director of Strategy and Campaigns at Global Zero, the global movement for the elimination of nuclear weapons and was a Global Campaigner and founding staff member at Avaaz.org, the largest online campaigning outfit in the world, with 30 million members. She holds a B.A. in Political Science from the University of Minnesota and an M.A. in International Affairs from the Paris Institute of Political Studies. Originally from Mexico City, Galit is currently a proud resident of Brooklyn, where, with multiple passports and no driver's license, she fits right in.



Dr. Robert Habans - *Meeting 4*

Dr. Robert Habans is The Data Center's Economist. As the organization's lead expert on local and regional economic analysis, Dr. Habans is primarily responsible for developing and conducting research projects that focus on economic development and workforce development, water management and coastal resilience, inclusive economic growth, and related topics. Dr. Habans has over a decade of research experience focusing on urban policy, local economic development, labor market change, and the economics of place from the neighborhood to the regional scale. Broadly, Robert's research examines how geographic difference and institutional change intersect with policy design and implementation, industrial and labor market restructuring, and the possibility of a more equitable, more balanced economy. Robert is an expert at blending quantitative and comparative approaches to research, designing innovative applications of economic data, and cultivating administrative data sources.

Prior to coming to The Data Center, Robert held research appointments at the University of California, Los Angeles, and the University of Illinois at Urbana-Champaign. A native of Greater New Orleans, Dr. Habans earned his PhD in Urban Planning and Policy from the University of Illinois at Chicago with a focus on local economic development planning. He also holds an undergraduate degree from the University of California, Berkeley, and a masters degree from the University of New Orleans.

Jeff Hebert - *Meetings 2, 3*

Jeff Hebert joined The Water Institute of the Gulf in January 2018 and serves as the Institute's first Vice President for Adaptation and Resilience, where he is leading the interdisciplinary work being done to help communities better adapt to changing environments. In addition, Hebert is an adjunct faculty member in the graduate sustainable development program at the Tulane School of Architecture.

Prior to joining the Water Institute, Hebert served as Deputy Mayor and Chief Administrative Officer of the City of New Orleans, where he managed the day to day operations of City Hall. Hebert also served as New Orleans's first Chief Resilience Officer, where he oversaw the Office of Resilience and Sustainability, which developed the city's first climate action strategy and the award-winning Resilient NOLA comprehensive resilience strategy. Hebert previously served as the Executive Director of the New Orleans Redevelopment Authority (NORA) and as the Mayor's Director of Neighborhood Revitalization. Prior to joining the City of New Orleans, Hebert served as the Director of Community Planning for the Louisiana Recovery Authority following the devastation from hurricanes Katrina and Rita. Hebert began his career with community development organizations in New York City and Philadelphia. In 2016, Hebert was appointed by Louisiana Governor John Bel Edwards to serve on the Governor's Advisory Commission on Coastal Protection, Restoration, and Conservation. Jeff holds a bachelor's degree from New York University, a master's degree in City Planning from the Massachusetts Institute of Technology, and is a graduate of the Achieving Excellence in Community Development program at Harvard University's Kennedy School of Government, where he was a Ford Foundation Fellow. Jeff is an active supporter of the New Orleans non-profit community, where he serves on several boards.

Bobbie Hill - *Meeting 4*

Bobbie Hill leads Concordia's engagement work. A natural connector, Bobbie is expert at facilitating public meetings, listening to community voices and encouraging open and honest communication. Over the course of dozens of projects around the country, Bobbie has honed Concordia's engagement methodology and approach while at the same time adapting to the nuances of diverse places and citizens.

Through the application of the Concordia Nexus Planning Model, Bobbie works to help communities realize their potential through consensus building and collaboration. She is committed to helping communities become healthy civil societies that are interconnected and integrated.

Bobbie has been part of a Women's Leadership Journey in South Africa led by internationally known author and organizational development consultant, Margaret Wheatley. Her collaborations with Meg have greatly informed Concordia's ongoing participatory planning and design work in New Orleans post Katrina and other urban and rural communities.

Currently, Bobbie is collaborating with visiting scholars at the Stanford Global Projects Center, researching the positive impact of public engagement in the design process. She recently presented at the Impact Alpha Conference at Stanford on the benefit of crowd co-design through robust community engagement. She also engaged in research to study Public Participation Law and Policy conducted by the Kettering Foundation.

Campbell Ingram - *Meeting 3*

Campbell Ingram ('91, Natural Resources Planning and Interpretation) is now the first director of the Sacramento-San Joaquin Delta Conservancy. The California legislature created the conservancy in 2010 to manage habitat restoration and economic development in the Sacramento-San Joaquin Delta. The area is the West Coast's largest estuary and serves over 25 million people. Some of the Conservancy's projects include sustainable water delivery, balancing human and animal needs and hundreds of restoration efforts up and down the Central Valley.

The son of a military father, Ingram enrolled at Humboldt State while living with his family in Korea. Once in Arcata, he found his calling in Natural Resources Planning and Interpretation. He also met his wife, Kimberly. When the two graduated, they traveled to Paraguay with the Peace Corps. Ingram later pursued environmental work from Texas to California, including projects in the delta region, working for the federal government, contracting with the military and later working with the nonprofit, Nature Conservancy.

Pam Jenkins - *Meetings 1, 2, 4*

Pamela Jenkins is a research professor of sociology and faculty in the Women's Studies program at the University of New Orleans (Emerita). She is a founding faculty member of the University of New Orleans Center for Hazard Assessment, Response and Technology.

Since retirement, she works closely with the New Orleans Police Department and the sexual assault advocates to develop best practices and policies. She has worked for nearly 30 years with survivors of domestic violence in a variety of settings across the state. Before Hurricane Katrina, her research interests were diverse, but she now focuses on how communities respond to a variety of social problems. Her research interests post-Katrina include documenting the response to Katrina as part of a national research team on Katrina evacuees. She has published on first responders, faith-based community response to the storm, and the experiences of domestic violence survivors during and after Katrina. Her latest book with Steve Kroll Smith and Vern Baxter, "Left to Chance," documents the recovery after Hurricane Katrina of two African-American neighborhoods. Since retiring from University of New Orleans, she has been involved with multiple projects documenting the impact of sea level rise and the Louisiana coast, including View from the Coast, Making Sense of a Place at Risk, and the LA-SAFE project.

Laurie Johnson - *Meetings 1, 3*

Laurie Johnson is an internationally recognized urban planner specializing in disaster recovery and catastrophe risk management and based in the San Francisco Bay Area. For over 30 years, she has combined her unique blend of professional practice and research to help communities address the complex urban challenges posed by natural hazards and disasters. Much of her post-disaster recovery work is captured in her recent book, After Great Disasters: An In-Depth Analysis of How Six Countries Managed Community Recovery (2017). She was also a lead author of the Unified New Orleans Plan and co-authored Clear as Mud: Planning for the Rebuilding of New Orleans (2010).

She currently serves as enterprise and strategic risk advisor to the California Earthquake Authority—the state's residential earthquake insurance program, a land use planning and disaster recovery advisor to California's tsunami program, and a disaster recovery advisor for Sonoma County and the City of Santa Rosa following the 2017 wildfires, and the cities of Christchurch and Wellington, New Zealand, in earthquake recovery and planning. She is a Visiting Scholar with the Pacific Earthquake Engineering Research Center, UC Berkeley, and affiliated faculty with New York University's Global Institute for Public Health Program on Population Impact, Recovery and Resilience. She chairs the U.S. federal Advisory Committee on Earthquake Hazards Reduction (ACEHR) and is the president-elect of the Earthquake Engineering Research Institute (EERI). She was inducted into the College of Fellows of the American Institute of Certified Planners (FAICP) in 2018. She holds a Doctor of Informatics from Kyoto University, Japan, and a Master of Urban Planning and a Bachelor of Science in Geophysics, both from Texas A&M University.

Joseph Kimbrell - *Meeting 1*

Joseph Kimbrell is a career public health leader who since June of 200 has served as the Chief Executive Officer of the Louisiana Public Health Institute (LPHI), a statewide non-profit public health organization. LPHI's mission is to Align Action for Health. Under Joe's leadership, LPHI has become a key public health leader in post-Katrina Louisiana, partnering with state and federal government agencies, universities, state and national foundations and a variety of local partners in to design and implement solutions that improve health. For eleven years, Mr. Kimbrell also simultaneously served as the founding CEO and President of the National Network of Public Health Institute (NNPHI), which is dedicated to enhancing the capacity of the national public health system by providing a network for 35 non-governmental public health organizations and administrative and coordinating support for national public health programs. With Joe's leadership, NNPHI expanded its initial membership of 15 to 35 public health institutes and affiliate organizations that spans across the nation and its scope of work to support national programs and collaborative projects. Prior to dedicating his career to establishing the public health institute model, Mr. Kimbrell served in a variety of leadership roles at the Louisiana Office of Public Health, including almost 20 years as Deputy Assistant Secretary. Joe has a Bachelor of Arts in History and Philosophy and a Masters in History from the Notre Dame Seminary, and a Masters in Social Work from Tulane University.

Lauren King - *Meeting 4*

Lauren King has spent two decades linking adults and youth to resources and opportunities that enable them to move from their present reality to one which they desire to ascend. A native New Orleanian, she is the Director of Workforce Programs with the Greater New Orleans Foundation (GNOF) where she works to cultivate new opportunities for GNOF in the workforce development space.

In her previous role as Director of Community and Economic Development with Delgado Community College, Lauren managed and implemented workforce programs as Delgado's TAACCCT Round 4: Scale-up Southeast Louisiana Program that provided training and industry-based credentials for over 1,000 students in the areas of Advanced Manufacturing and Energy, the Pathways to Construction Initiative, and played an integral role in the launching of two new major programs for the College- the Certified Line Worker Training Program and the Cisco Certified Networking Associates Program. Under her leadership, Delgado obtained the designation of Cisco Networking Academy and is a provider of the Water Environmental Federation (WEF) National Green Infrastructure Certification program. Lauren has worked extensively with academic programs in an effort to align workforce (non-credit) trainings to programs that provide credit toward associate degrees. This alignment to academic training has afforded students the opportunity to lessen the time and funding needed to obtain a degree.

Lauren is a two-time graduate of Xavier University of Louisiana holding a Bachelor of Arts Degree in Mass Communications and a Master's of Arts Degree in Education-Curriculum and Design. She currently resides in New Orleans, LA with her husband and one of their four children.

Stephen Kroll-Smith - *Meeting 4*

Steve Kroll-Smith is a Professor of Sociology and Faculty Member in the Program for Sustainability at the University of North Carolina, Greensboro. He's a former Research Professor of Sociology at the University of New Orleans. For six years, he edited Sociological Inquiry and is the recipient of the Sociological Honors Society's Distinguished Editor Award. He received the American Sociological Association Distinguished Contribution Award for Research on Hazards and Disasters. His most recent book, Recovering Inequality, Hurricane Katrina, the San Francisco Earthquake of 1906 and the Aftermath of Disaster is currently nominated for two book awards.

Vic Lafont - *Meeting 4*

Vic Lafont is a native of Lafourche Parish and the bayou region, Vic Lafont has aggressively worked in public services to implement community and economic growth in the Southeastern Louisiana parishes. As President/ CEO of the South Louisiana Economic Council since 1990, Lafont's primary responsibility is to administer and manage a regional economic/community development program for the Bayou parishes of Lafourche, Terrebonne, Assumption and St. Mary. Lafont, a 1978 graduate, holds a Bachelor of Science degree in business administration from Nicholls State University. He earned his Master of Science degree in sports administration from the University of South Alabama in Mobile, and his Master of Arts degree in Mass Communications and Marketing from Louisiana State University in Baton Rouge. Lafont completed his community/economic development training at the Community Development Institute (CDI) and is certified as a Professional Community Economic Developer (PCED).

Tara Lambeth - *Meetings 2, 3*

Tara Lambeth, PhD, CFM is the Assistant Director at UNO's Center for Hazard Assessment, Response and Technology (UNO-CHART). She currently directs a project in collaboration with Louisiana Sea Grant and the United Houma Nation, which examines how environmental stressors affect the livelihoods of the indigenous community, and shape the mitigation strategies they use to protect their coastal lands. Her other research efforts focus on adaptation to climate change, resilience planning, and hazard mitigation.

Tara received a Doctor of Philosophy in Urban Studies from the University of New Orleans in 2016, and a Master of Science in City and Regional Planning from Pratt Institute in Brooklyn. She is also a Certified Floodplain Manager.

Sara Lauria - *Meeting 2*

Sara Lauría is an architect and specialist in urban management. She graduated at the Facultad de Arquitectura, Diseño y Urbanismo of the Universidad Nacional del Litoral (FADU-UNL), Santa Fe, Argentina.
She has been in office for the Municipality of Santa Fe city since 2007, holding different positions as Director of "Santa Fe Habitat. Agency for Social and Urban Development "; Coordinator of the Execution Unit of the Neighborhood Improvement Program (BID-PROMEBA); Under Secretary of Habitat and Housing; and Director of the Municipal Institute of Housing. Sara is trained and specialized in land, habitat and housing management policies, from an urban resilience approach, as well as right to land, social production of habitat, and integral urban improvement. For these topics, she has published, presented in multiple national and international events, and received awards for innovation in public management. Sara is involved in teaching and research at the FADU-UNL, where she also held different positions between 1998 and 2007, and worked on institutional evaluation and strategic development for the University between 1996 and 1997.

Currently, she carries out research, extension and postgraduate activities from different scientific-academic areas within FADU. She is a member of CAI + D projects (Action Courses for Research and Development of the UNL); the Institutional Program "URBAM. Urban Planning: interdisciplinary and transdisciplinary strategy," and the" Laboratory of Educational Supplies for Multimedia Education (LIDEM).

Melissa S. Lee - *Meeting 4*

Melissa S. Lee co-leads an integrated team of planners, designers and technical experts in the completion of community engagement, planning and facilitation activities as Senior Manager for Planning and Community Engagement at Concordia. As an experienced urban redevelopment professional and solutions-focused administrator with a comprehensive background in neighborhood economic development, historic preservation, community organizing, and urban planning, Melissa has shepherded socially innovative programs from inception to completion across multiple U.S. cities. Melissa envisions equitable planning and development more than buzzwords. She is committed to making planning more responsive to quality of life demands of all populations, developing new tools for understanding how social and economic conditions affect access across racial and socioeconomic disparities, and diversifying the involvement of those participating in planning processes.

Her previous work experience includes serving on executive teams to advance program strategy and project implementation at the New Orleans Redevelopment Authority (NORA), the Coalition for the Improvement of Bedford-Stuyvesant (CIBS), New York City Mayor's Office and the Lower East Side Business Improvement District (LES BID) managing the Lower Manhattan Small Business and Workforce Retention Program aiding area small businesses in the September 11th recovery. Melissa received a B.S in International Relations from the University of Redlands and a M.P.A with a concentration in Urban Community and Economic Development from the Wagner School of Public Service at New York University. She serves as an Adjunct Professor at the School of Architecture at Tulane University in Master of Sustainable Real Estate Program.

Matt Lorin - *Meeting 1*

Matt Lorin is the inaugural President of Oakland, CA-based XQ Institute, an organization dedicated to rethinking public high school in America. There, he leverages over a decade of experience in public education promotion and reform and over 25 years of public service and advocacy to provide operational leadership and strategy for the organization. Prior to his current position, Matthew served as founding Executive Director of Honolulu-based, The Learning Coalition, where he managed a multimillion-dollar grantmaking portfolio focused on civic engagement in public education in Hawaii. He was also Education Program Officer for the Harold K.L. Castle Foundation, where he managed a multi-million dollar grantmaking portfolio promoting excellence in public education through school-level leadership.

Before joining the world of philanthropy, he was a member of the Senior Management Team at the Office of Hawaiian Affairs (OHA), where he served as the Director for Planning, Research, Evaluation and Grants. From 1995 to 1997, Matt was a Director on President Clinton's National Security Council Staff in the Office of Multilateral and Humanitarian Affairs. Before accepting his appointment in the White House, Matt was Founder and Executive Director of SHARE, the Student Human Rights Exchange — a pioneering non-profit organization that put information and communication technologies to work to promote civil society in countries undergoing political transition.

Matt holds a BA from Tufts University, a certificate in multicultural communications from the School for International Training in Brattleboro, Vermont, and an MPA from the JFK School of Government at Harvard University. Outside of his professional life, Matt participates in working groups on civil-military affairs and the delivery of humanitarian assistance in complex emergencies. He is a member of the National Policy Roundtable. He sits on the boards of various local not-for-profits including Hawaii Education Matters, Family Hui Hawaii and the Hakipu'u Learning Center.

Dr. Calvin Mackie - *Meeting 1*

Dr. Calvin Mackie is an award winning mentor, an inventor, an author, a former engineering professor, an internationally renowned speaker, and a successful entrepreneur. His message as a mentor, author, speaker, and entrepreneur continues to transcend race, gender, ethnicity, religion, and time. A lifelong resident of New Orleans, Dr. Mackie graduated from high school with low test scores requiring him to undertake special remedial classes at Morehouse College. He completed his degree in Mathematics at Morehouse in 1990, graduating Magna Cum Laude and a member of the prestigious Phi Beta Kappa National Honor Society. He was simultaneously awarded a Bachelors degree in Mechanical Engineering from Georgia Tech, where he subsequently earned his Master's and Ph.D in Mechanical Engineering in 1996. Following graduation he joined the faculty at Tulane University, where he pursued research related to heat transfer, fluid dynamics, energy efficiency, and renewable energy. He enjoyed a respected academic career for twelve years, before refocusing his career on entrepreneurship, consulting and professional speaking.

Mackie has won numerous awards including the 2003 Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring in a White

House ceremony. Dr. Mackie was awarded the highest honor bestowed upon a graduate of Morehouse College, A Candle in the Dark's "Bennie" Award for his many academic, professional, and entrepreneurial achievements.

Following the catastrophic Hurricanes Katrina and Rita in 2005, former Louisiana Governor Kathleen Blanco appointed Dr. Mackie to the thirty-three member board of the Louisiana Recovery Authority (LRA), the guiding agency to lead the state's rebuilding efforts. In 2009, then Louisiana Lt. Governor Mitch Landrieu appointed Dr. Mackie to the Louisiana Council on the Social Status of Black Boys and Black Men.

Most recently, Dr. Mackie founded STEM NOLA is a non-profit organization founded to expose, inspire and engage communities about the opportunities in Science, Technology, Engineering and Mathematics (STEM). STEM NOLA designs and delivers activities, programs and events that bring inspiration, motivation and training to all STEM stakeholders (especially students) across entire communities. Since December 2013, STEM NOLA has engaged over 7000 K-12 New Orleans students in hands-on project based STEM activities.

Dr. Mackie's is the author of two award winning books: A View from the Roof: Lessons for Life and Business and Grandma's Hands: Cherished Moments of Faith and Wisdom.

Dr. Mackie is a devoted husband to his wife, Tracy, and father to his two sons, Myles Ahmad and Mason Amir.

Hermoine Malone - *Meeting 4*

Hermione Malone serves as Executive Director of Good Work Network, a New Orleans-based small business development and technical assistance provider with a mission of serving as a catalyst for women- and minority-owned business success. Since its founding in 2001, Good Work Network (GWN) has helped start or sustain over 2,200 business, grow or sustain over 5,000 jobs, and connected clients to more than $70 million in contracts awarded in the last six years.

Prior to her arrival at GWN, Hermione served as Director of Supplier Diversity for Cleveland Clinic in Cleveland, OH. There, she created the corporate supplier diversity strategy, including metrics, policies, and protocols designed to increase Cleveland Clinic purchasing from minority-, women-, and veteran-owned companies, among others, ultimately attaining more than $100M in annual spend with diverse companies. Hermione has also worked as a professional journalist for numerous U.S.-based newspapers, including The Boston Globe.

She is a German Marshall Memorial Fellow (2016) and holds an M.B.A. in Marketing and Entrepreneurship from Case Western Reserve University and a B.S. in Journalism from Florida A&M University.

Simone Maloz - *Meeting 4*

Simone Maloz is the Executive Director of Restore or Retreat, a non-profit coastal advocacy group working to identify and expedite the implementation of aggressive, large-scale restoration projects. As a Terrebonne Parish native Simone works with Restore the Mississippi River Delta on the local, state and federal levels to advocate for the needs of the disappearing Louisiana coast, specifically the Barataria and Terrebonne Basins.

Since the devastating hurricanes of 2005 and the 2010 oil spill, she has also been tracking the process of the different planning efforts underway, including the Natural Resources Damage Assessment Act (NRDA), Clean Water Act Penalties, the 2012 and 2017 State Master Plan Update and the Louisiana Coastal Area Study projects, all to ensure the needs of the Barataria and Terrebonne Basins are being adequately met with the necessary sense of urgency in the face of what is at stake. She was appointed to serve on the Governor's Advisory Commission on Coastal Protection, Restoration and Conservation in the summer of 2014, and is a member and co-chair of the Commission's Diversion Subcommittee. Simone plans on having the Louisiana coast continue to serve as her home and the home of her children and grandchildren.

Camille Manning-Broome - *Meetings 2-4*

Camille Manning-Broome is President and ECO at the Center for Planning Excellence. As a native Louisianan, Camille is internationally recognized for her expertise in resilience and adaptation planning. Her leadership on issues of land loss, coastal community sustainability, climate change resilience and adaptation as well as resident-led community planning has contributed to the transformation of cities, towns and parishes throughout Louisiana and has created knowledge of interest to peers throughout the U.S. and the globe, from South Africa to Scotland to Denmark.

As President and CEO, Camille oversees CPEX's multidisciplinary team as they develop plans and provide technical assistance, data and research, policy guidance, communications support and thought leadership to communities seeking to make thoughtful decisions about how they develop and grow. Camille works closely with the CPEX Board of Directors to set the organization's vision and advance CPEX's mission to bring people and planning together to make great places.

Camille's prior career experience includes work in nonprofit, private and government sectors. After Hurricanes Katrina and Rita, she was among the first planners on the ground, working across 36 parishes to develop the Louisiana Speaks regional plan. She served as Assistant Deputy of Operations for FEMA's Long-Term Community Recovery group and was later recruited to the Shaw Group where she co-authored Louisiana's first Coastal Master Plan. She has attended Congressional delegation trips to the Netherlands and Japan to study water and disaster management. Camille has a B.A. in Art History and an M.A. in Environmental Science with an emphasis on Disaster Science and Management from Louisiana State University. She is currently a Ph.D. candidate in Environmental Sciences at LSU; her dissertation research is focused on community adaptation to climate change.

Ryan Mast - *Meeting 2*

Ryan Mast is the Director of the Office of Resilience and Sustainability for the City of New Orleans and serves as the Hazard Mitigation Administrator in the Office of Homeland Security and Emergency Preparedness. In this capacity, he leads the City's resilience and mitigation planning efforts and oversees implementation of strategic programs that reduce risk, build equity and increase adaption to natural and man-made shocks and stresses.

Prior to this role, Ryan worked for the Federal Emergency Management Agency at the Louisiana Recovery Office supporting the $20 billion recovery effort from Hurricanes Katrina, Rita, Gustav and Ike. During his tenure with the Agency, he served with the Hazard Mitigation Grant Program and External Affairs departments and supported the DHS Center for Faith Based and Neighborhood Partnerships in establishing a Building Resilience with Diverse Communities program in New Orleans.

Ryan served as a Peace Corps Volunteer in Guatemala and is a graduate of Tulane University's Stone Center for Latin American Studies. He was a member of the W.K. Kellogg Foundation's inaugural Community Leadership Network Fellowship Program.

Ivy Mathieu - *Meeting 2*

Ivy Mathieu is currently a retiree who is enjoying volunteering opportunities that drive two of her passions, nurturing and developing People and the Environment. Those passions drove her to get involved with the Human Services subcommittee for the St. John Road to Recovery after Hurricane Isaac. Following this, Ivy became involved with LA SAFE community meetings as a table host through the Foundation for Louisiana and found an opportunity to continue her passions and continued to grow as a community-based coastal expert. Her involvement led to Ivy's appointment to St. John's Coastal Advisory Committee in October 2017.

During her 35 plus year career as a Human Resources, Training & Development, and Risk Management professional in the telecommunications and health care industries, she focused on the importance of giving back to the communities she lived in (Gainesville, FL and Tucson, AZ). Ivy values participating in rewarding volunteer efforts that hone her voice to help underserved communities or environment challenges. She has worked closely with the following organizations: Big Brother/Big Sister as a board member and a Big Sister; Dress for Success, and she also launched a recycle program in the late 80s at her telecommunication company by doing away with Styrofoam cups and recycling white paper.

As a person who was reared in Edgard (Lucy) and schooled in Louisiana (proud graduate of Xavier University), and who enjoys fishing, gardening and recycling, it was important when I returned home from Gainesville and Tucson to continue giving back to my community, and engage in my local community to make positive impact on the state that "love had forgotten."

Michael McDonald - *Meeting 3*

Dr. Michael McDonald is the architect of Resilience Systems and Resilience Networks in many regions of the United States and many countries around the world. The purpose of the Resilience Systems is to rapidly expand information sharing environments, open data systems, and collective intelligence to improve health, economic well-being, energy resilience, and human security, while enhancing levels of development and sustainability. The resilience of the energy matrix is crucial to all other mission critical functions in the U.S.

Dr. McDonald coordinates the National Sustainable Security Infrastructure initiative, which advises on the forecasting and management of strategic and existential threats to the U.S. In 2015 and into 2016, Dr. McDonald, as the coordinator of the Global Health Response and Resilience Alliance, developed the serious game exercises for the West Africa Disaster Preparedness Initiative in association with eleven ECOWAS countries and Cameroon. This effort was designed to help these countries prepare their Emergency Operations Centers and Standard Operating Procedures for managing complex events of mass consequence during rapid global changes (including but not limited to climate change) during the later part of the Ebola epidemic. Energy issues played a key role in the effectiveness of the response and the current recovery and development period.

Dr. McDonald ran $50 million in advanced technology programs while directing the Koop Foundation with the U.S. Surgeon General. He coordinated the U.S. Health Information Infrastructure Consortium, which led to the build out of the $30 Billion National Health Information Network, while chairing the U.S. Medical Technology Policy Committee (IEEE). Dr. McDonald took Health Central Public as its Founding Chairman. He is now Chairman of Health Initiatives Foundation Inc. and President of OVIAR Global Resilience Systems, Inc.

Dr. McDonald, within his ongoing work on the U.S. Resilience System and the New York Resilience System, is chairing the East End REV (Reforming the Energy Vision) Grid Consortium. The East End REV Grid test bed initiative is providing an environment for leading energy, communication, and computing grid innovators to help shape the future of America's internet of energy, as it integrates with the internet of things. Dr. McDonald will be applying his extensive experience with developing decentralized networks, distributed collective intelligence, community engagement, and serious game methods to building out tools and methods for decentralized simulation and control of renewable energy and other distributed energy, communication, and computing assets in the East End REV Grid.

Connor McManus - *Meetings 2, 3*

Connor McManus is a designer and project manager at Concordia in New Orleans, LA. He received his Bachelor's of Arts in Urban Studies and Visual Arts from Brown University, where he focused on the built environment, graphic design, and the intersection of culture and urban space.

Connor is Concordia's project manager on LA SAFE, leading the community engagement component of the process, including planning meeting goals and designing presentations, group activities, and handouts. After each meeting, Concordia entered and analyzed what residents said at each meeting, and produced meeting summaries for the team and general public. Recommendations from each meeting informed the subsequent meetings and strategy development. Connor has helped write sections of the LA SAFE plan and assisted with policy development to respond to community input during the process.

Samantha Medlock - *Meeting 3*

Samantha Medlock is senior vice president and Head of North America Capital, Science, and Policy with Willis Towers Watson, advancing insurance capabilities to address risk and resilience requirements for corporate and public sector clients. Previously, Ms. Medlock was senior advisor in the Obama White House, coordinating across the Executive Office of the President and the administration to reduce the risks and costs of disasters by strengthening standards and creating incentives for cross-sector innovations. She has more than 20 years of experience in land use and disaster law, and has testified in Congress on flood risk, levee safety, and resilient recovery from disasters. She is a recipient of the Army Commander's Award for Public Service for her service on the National Committee on Levee Safety after Hurricane Katrina. In addition to supporting US resilience policy and practice, she has participated in numerous international technical exchanges.

Ms. Medlock is a certified floodplain manager, a Juris Doctor graduate with honors of Vermont Law School, and earned a Bachelor of Science summa cum laude from Texas Woman's University. She serves on the Advisory Committee for the Natural Hazards Center at the University of Colorado-Boulder, contributor to the executive education program of the University of Cambridge Institute for Sustainability Leadership, and is an Adjunct Professor of Law at the Santa Barbara and Ventura Colleges of Law.

Jonathan Meyers - *Meeting 3*

Jonathan Meyers returned to HR&A after ten years in the public sector. Jon brings a practical perspective to public-private development challenges. Jon has deep experience advising public and private sector clients on the financing and implementation of complex real estate projects. With a dedicated focus on economic impact measurement and analysis, he is able to develop sound and effective strategies for deploying public-private partnerships. In 2016, Jon returned to HR&A after serving as the Chief Operating Officer of the Trust for Governors Island, where he was responsible for capital projects, operations, and finance for a complex redevelopment project in New York Harbor. During his initial tenure at HR&A, Jon was instrumental in creating an economic rationale for the re-use of the High Line in New York City. He led HR&A's efforts to estimate the impact of saving the High Line as a public open space as an alternative to demolishing the historic structure. Jon also served as the project manager for HR&A's work creating economic development strategies for downtown Columbus and Cincinnati, Ohio.

Following September 11, 2001, Jon managed the firm's work to support recovery efforts with the Alliance for Lower Manhattan. He surveyed residents and evaluated potential market demand for new retail uses, and worked with the Lower Manhattan Development Corporation to estimate the economic impact associated with a variety of proposed transportation and infrastructure investments. Jon holds a Master's in Business Administration from Columbia University and a Bachelor of Arts in Geography from Dartmouth College.

Corey Miller - *Meeting 2*

Corey Miller joined Coalition to Restore Coastal Louisiana (CRCL) in 2012. A 3rd-generation native of the New Orleans area and an alumnus of LSU, Corey received his Master of Sociology from the University of New Orleans through a research assistantship with the Center for Hazards Assessment, Response and Technology (UNO-CHART). Corey leads CRCL's community engagement efforts with a focus on working with fishing-dependent communities through a social science perspective to improve resiliency in the face of a degrading landscape and increasing flood risks.

Dr. Ashby Monk - *Meeting 1*

Dr. Ashby Monk is the Executive and Research Director of the Stanford Global Projects Center. He has a strong track record of academic and industry publications. He was named by CIO Magazine as one of the most influential academics in the institutional investing world in 2013. His research and writing has been featured in The Economist, The New York Times, The Wall Street Journal, Financial Times, Institutional Investor, Reuters, Forbes and on National Public Radio among a variety of other media. His current research focus is on the design and governance of institutional investors, with a particular specialization in pension and sovereign wealth funds.

Andreanecia Morris - *Meeting 2*

Andreanecia M. Morris serves as the Executive Director for HousingNOLA, is a 10-year public private partnership working to solve New Orleans' affordable housing crisis. The 10-year Strategy and Implementation Plan, released in 2015, indicates the need for 33,600 additional housing opportunities by 2025.

Morris has spent her career working to create affordable housing in Metro New Orleans. Post Katrina, she has either directly implemented or advocated for programs that created 500 first time homebuyers, disbursed $104.5 million soft second subsidy for Metro New Orleans and provided supportive services for approximately 5,000 households—homeowners who were struggling to rebuild and renters who required wrap around services. Morris was lead organizer for the Greater New Orleans Housing Alliance (GNOHA) when it started in 2007 as a loose coalition of non-profits and community development corporations and, since its incorporation in 2012, Morris has served as GNOHA's Chair. She also is vice-chair of the Housing Authority of New Orleans, co-chair for the Louisiana Housing Trust Fund Initiative and is a board member of the Friends of Lafitte Greenway and the Mid-City Neighborhood Organization.

In 2016, BIZ New Orleans Magazine named Morris one of the Top 10 Influencers in Real Estate and in 2017 Morris was selected to participate in an international workshop on forced eviction and urban displacement in South Africa. The Baton Rouge Chapter of The Links, Incorporated also named Morris a National Trend Louisiana Role Model in December 2017. Gambit Weekly named Morris New Orleanian of the Year for leading HousingNOLA's efforts to change housing policy in 2017.

May Nguyen - *Meeting 2*

May T. Nguyen is the Community Outreach Director at Tulane Environmental Law Clinic joined TELC in 2015. She develops and disseminates public education on Louisiana environmental law and policy (for example, community trainings based on TELC's "My Guide to Environmental Protection in Louisiana"), assists with advocacy campaigns led by TELC clients, processes intake requests, and writes grant proposals and reports. In 2013, Nguyen received the Rishwain Social Justice Entrepreneur Award for successfully designing and implementing a novel "impact claims" campaign strategy to demand recognition and calculate damages for lost subsistence use due to the BP oil drilling disaster. After Hurricane Katrina, Nguyen created culturally competent small business assistance programs and organized partnerships among diverse stakeholders to invest over $4 million in grants and low-interest loans for rebuilding neighborhood businesses in New Orleans east. She earned a JD from UCLA Law School with a specialization in Public Interest Law and Policy, a MA from Johns Hopkins University in International Economics and Southeast Asia Studies, and a BA from Amherst College in Political Science. Vietnamese (fluent); Spanish (proficient).

Tony Oliver-Smith - *Meeting 1*

Dr. Tony Oliver-Smith is Professor Emeritus of Anthropology at the University of Florida. He is also affiliated with the Center for Latin American Studies and the School of Natural Resources and Environment at that institution. He held the Munich Re Foundation Chair on Social Vulnerability at the United Nations University Institute on Environment and Human Security in Bonn, Germany in 2005-09. In 2013 he won the Bronislaw Malinowski Award for Lifetime Achievement of the Society for Applied Anthropology. He has done anthropological research and consultation on issues relating to disasters and involuntary resettlement in Peru, Honduras, Colombia, India, Brazil, Jamaica, Mexico, Japan, and the United States since the 1970s. He has served on the executive boards of the National Association of Practicing Anthropologists and the Society for Applied Anthropology. He is also a member of La Red de Estudios Sociales en Prevención de Desastres en America Latina and is on the editorial boards of Environmental Disasters and the International Journal of Disaster Risk Reduction.

He currently serves on the scientific committee of the Integrated Research on Disaster Risk program of the International Council for Science (ICSU), the International Social Science Council and the International Strategy for Disaster Risk Reduction. His work on disasters has focused on issues of post-disaster social organization, aid distribution, social consensus and conflict, grief and mourning issues, vulnerability analysis, root cause analysis, and mobilization of community-based reconstruction efforts. His work on involuntary resettlement has focused on such issues as the threat and impacts of displacement and the formation of social movements, the policy implications of resistance to resettlement, and the critiques of development policy and practice articulated by resistance movements. He is currently working on issues of climate change, disasters, displacement and resettlement. He has authored, co-authored, edited or co-edited 7 books and over 75 journal articles and book chapters.

Rob Olshansky - *Meetings 1, 2*

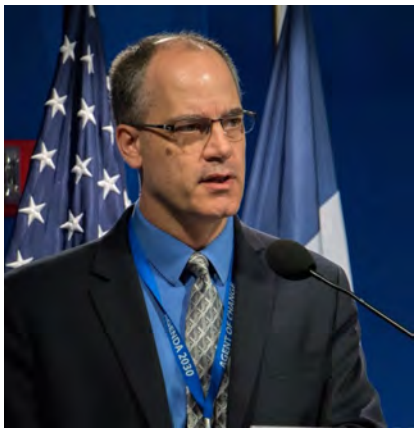
Robert B. Olshansky, Ph.D., FAICP, is Professor of Urban and Regional Planning, University of Illinois at Urbana-Champaign. His teaching and research cover land use and environmental planning, with an emphasis on planning for natural hazards. Professor Olshansky has studied recovery planning and management after numerous major disasters around the world, including ones in the U.S., Japan, China, Taiwan, India, Indonesia, and Haiti. These reconstruction processes have included dozens of planned community relocations. His research has been funded by the National Science Foundation and Lincoln Institute of Land Policy, and in 2004-05 and 2012-13 he was a Visiting Professor at the Disaster Prevention Research Institute at Kyoto University. Along with Laurie Johnson he co-authored Opportunity in Chaos: Rebuilding after the 1994 Northridge and 1995 Kobe Earthquakes (available online), Clear as Mud: Planning for the Rebuilding of New Orleans (APA Press, 2010), and After Great Disasters: An In-depth Analysis of How Six Countries Managed Community Recovery (Lincoln Institute, 2017). In 2014 he co-edited a special issue of the Journal of the American Planning Association on Planning for Disaster Recovery. He is now conducting a systematic study of international cases of post-disaster community relocations.

Colette Pichon Battle - *Meetings 2-4*

Colette Pichon Battle, Esq. is the founder and Executive Director of the Gulf Coast Center for Law & Policy, where she is committed to advance climate justice through Economic Justice, Energy Democracy and Ecological Equity.

Colette develops and directs programming focused on Equitable Disaster Recovery, Global Migration, Community Economic Development, Climate Justice and Energy Democracy. For more than a decade, Colette has worked with local communities, national funders and elected officials around equity in the post-Katrina/post-BP disaster Gulf Coast. Colette was a lead coordinator for Gulf South Rising 2015 a regional initiative around climate justice and just transition in the South. In addition to developing advocacy initiatives and a suite of community justice trainings on issues that intersect with race, systems of power and ecology, Colette leads the delivery and management of GCCLP's legal services and maintains a legal specialization in immigration law and disaster law.

Ms. Pichon Battle serves on the Board of Directors for the US Climate Action Network (USCAN), the Center for Constitutional Rights (CCR), Gulf Restoration Network (GRN), and Sunrise. Colette serves on the governance council for the Southern Movement Assembly (SMA), is an advisory board member for Communities Responding to Extreme Weather (CREW) and is a member of the Experts of Color Network (ECON) working to address racial wealth disparities.



Tony Pipa - *Meeting 1*

Tony Pipa is a leader in the philanthropic and public sector promoting equitable economic growth and reducing poverty, in the United States and globally. He served for six years in the Obama administration, finishing as Chief Strategy Officer for the U.S. Agency for International Development (USAID). Prior to that, he was the U.S. special envoy to the United Nations at the Department of State to negotiate the Sustainable Development Goals (SDGs), adopted by President Obama and the General Assembly at the UN in September 2015. He helped lead the new policy bureau created at USAID and also served as international policy advisor to the Administrator, overseeing the Agency's diplomatic relationships and strategic engagement in global policy.

Tony's government service builds on a long record of leadership in the nonprofit and philanthropic sector. He helped launch Foundation for Louisiana out of Governor Blanco's office after Hurricane Katrina, and facilitated multiple collective efforts in the Gulf Coast to advance an equitable recovery. At the same time he served as the director of the NGO Leaders Forum at the Harvard Kennedy School. He served as founding executive director of the Warner Foundation, a family foundation focused on race and poverty in North Carolina, and at the Triangle Community Foundation established one of the country's first formal programs to help donor-advisors maximize their impact. He has been a principal executive in 15 nonprofit and philanthropic start-ups, and has more than 25 years of expertise in policy and partnerships at the state, federal, and global levels. Tony attended Stanford University, was graduated from Duke University, and earned an MPA at the Harvard Kennedy School.

Xuan Quach - *Meeting 2*

Xuan Quach is currently the Director of Center for Consultancy on Sustainable Development (C4SD), under the Da Nang Institute for Socio-Economic Development (DISED), Da Nang People's Committee. C4SD provides research, forecast, and sustainable solutions to economic, social, and environmental developments of Da Nang city as well as the Central Highlands of Vietnam. Recently, Xuan has been appointed to be deputy chief of Danang Climate Change Coordination Office (CCCO).

Xuan graduated from Hanoi Water Resource University, major in Economics. She got her Master Degree from Kyushu University, Japan and obtained her PhD in water resource management from Milan Polytechnic University, Italy. She used to work for the Institute for Water Resource Planning (IWRP) in Hanoi from 1997 to 2012. In total, she has more than 20 years of extensive and management experiences in the issues related to water resource sector.

Ali Rex - *Meeting 2*

Ali Rex works in architectural design and community engagement at Concordia. She is committed to the principal that good design should reflect the voices and needs of the community it serves. Ali worked as part of the LA SAFE team to create community engagement materials that were accessible to a broad audience, and activities that aided conversations around coastal Louisiana's climate challenges. She designed demonstration projects that responded to the communities' input and has helped write engagement sections of the LA SAFE plan.

She received her Bachelor of Arts in English at the University of Texas at Austin and her Master of Architecture from Tulane University. Her architecture career brings together her interests in people, story-telling, community, and design. Her recent work includes historic mixed-use renovations, residential new construction, and historic tax credit consulting. Outside of work, she spends her time honing her pottery skills and can often be found at her studio, elbow-deep in clay.

Mathew Sanders - *Meetings 1-4*

Mathew Sanders is the resilience program and policy administrator for the State of Louisiana's Office of Community Development (OCD). Louisiana received a $92.6M award in conjunction with the HUD-funded National Disaster Resilience Competition (NDRC), including a $40M award to support its resilience policy framework, Louisiana's Strategic Adaptations for Future Environments (LA SAFE), and a $48.3M award to resettle the Isle de Jean Charles community in Terrebonne Parish, LA. Mathew was the state's intergovernmental lead for its NDRC application and is currently the principal in the development of both awarded projects.

Prior to taking on a resilience-specific role within OCD, Mathew served as the organization's policy advisor, taking a lead role in program development in conjunction with state's recovery from 2012's Hurricane Isaac. Additionally, he has focused on program and policy development within the state's broader $16 billion portfolio in response to hurricanes Katrina, Rita, Gustav and Ike as well as cloudburst flooding events affecting large swaths of Louisiana in March and August 2016.

Mathew holds degrees from Louisiana State University and New York University in mass communication and as a master of urban planning, respectively. Additionally, he is accredited by the American Planning Association's American Institute of Certified Planners (AICP).

Mr. Sutcliffe has a Master of Arts (M.A.) in Humanities and Social Thought from New York University, a Bachelor of Arts (B.A.) in History and a Bachelor of Science (B.S.) in Animal Sciences from Louisiana State University. Before coming to the Governor's Office he worked as a science teacher in Baton Rouge and Pittsburgh; and with Louisiana State University's Economics & Policy Research Group.

Erin Shew - *Meeting 1*

Erin Shew is the Special Projects Coordinator at Concordia, where she works on developing best practices and lessons learned from the LA Safe: Louisiana's Strategic Adaptations for Future Environments coastal resilience project. Prior to her work at Concordia, Erin served as the Deputy Associate Director for Climate Equity at the White House Council on Environmental Quality, where her portfolio included operationalizing climate equity considerations in federal programs and coordinating federal policy to assist communities considering relocation as an adaptation response to the impacts of climate change. She is originally from Alaska, and spent several years working for the State of Alaska as an anthropologist, conducting research on customary and traditional uses of wild foods and the impacts of development and climate change on food security in rural Alaska. Erin is completing an MA in Arctic and Northern Studies, focusing in Environmental Policy, from the University of Alaska Fairbanks and holds a BA in East Asian Studies from Lewis and Clark College.

Courtney Smith - *Meetings 1-2*

Ms. Smith is the Program Associate of Resilience at The Rockefeller Foundation. Since joining the Foundation in 2015, Ms. Smith has managed and overseen national and international resilience initiatives within The Rockefeller Foundation portfolio, including ef forts to build global capacity to deliver resilience, and the development of tools and processes to measure and demonstrate the value of these resilience efforts.

Prior to The Rockefeller Foundation, Ms. Smith was the project manager of Resilience and Community Engagement at the Municipal Art Society of New York, where she managed the Livable Neighborhoods program and community engagement within the Federal Rebuild by Design initiative. She previously worked as a consultant on Department of Housing and Urban Development contracts at the consulting firm, ICF International. In her career, Courtney works at the intersection of public, private, and philanthropic partnerships, to find new solutions and strategies for accelerating the impact and effectiveness of design and planning in the resilience field.

Larry Sorapuru, Jr. - *Meeting 2*

Larry E. Sorapuru, Jr. is a native and lifelong resident of Edgard where he co-founded the Sitari Corporation, a newly formed biomass company, after retiring from Monsanto after 36 years. Mr. Sorapuru is the Councilman at Large in District A for St. John the Baptist Parish, where he was recently elected by his peers to serve as the chairman of the St. John the Baptist Parish Finance Committee.

Councilman Sorapuru is also a member of the St. John the Baptist Parish Farmers Market Advisory Board, Utility Board, and Youth Planning Board. He is also a member of the West St. John Civic Association, West St. John Stakeholders, Second Ward High Cultural Community, Wallace Indian Organization, Solidarity Project Advocacy Network, St. John the Baptist Parish Sheriff's Citizen Academy, and the Secretary of the Black Caucus for the Louisiana State Police Jury Association Councilman Sorapuru has worked tirelessly over the years for the residents of St. John the Baptist Parish and will continue to do so in his role as Councilman at large, his first-ever elected position. Councilman Sorapuru is most proud of his role as father and grandfather, where he can serve as an advocate to make St. John the Baptist Parish an even better place to live in the future, working with such groups as the Concerned Citizens of St. John and the Louisiana Environmental Action Network (LEAN).

Charles Sutcliffe - *Meetings 2, 4*

Charles Sutcliffe is the Chief Resilience Officer at Governor's Office of Coastal Activities. The mission of the Governor's Office includes but not limited to assisting the State of Louisiana in the development and implementation of a holistic engineering plan to achieve a sustainable coastal ecosystem, encompassing the entirety of Louisiana's fragile coast from the Pearl River to the Sabine River, all predicated upon integrating uncompromised engineering, scientific and ecological principles.

Josh Tatum - *Meeting 4*

Josh Tatum is a Program Manager at GNO Inc. He is responsible for managing GNO Inc.'s signature workforce development program, GNOu, and additional workforce development initiatives that will provide sustainable pipelines for jobs of today and tomorrow. He also works on environmental and resilience initiatives as catalysts for wealth generation in Southeast Louisiana. Josh aids in the management of grants for GNO, Inc. initiatives and programs, including through foundation support.
Tatum began his career with Winvale, an Inc. 500 consulting firm based in Washington, D.C helping businesses develop sales and marketing strategies to do more business with the government. Supporting more than 3,000 commercial and government organizations, Winvale is a leading provider of Government Advisory Services and Strategic Consulting & Training Services to government contractors across all industries and disciplines. Tatum later joined East Carolina University as a Research Assistant working on topics such as transportation, government contracting, and human capital development.

Tatum is a graduate of North Carolina State University with a B.A. in Political Science and received his M.P.A. from East Carolina University.

Rachelle Thomason - *Meeting 2*

Rachelle Thomason works with communities, organizations and government agencies across Louisiana to grow local knowledge and local capacity around current and future coastal challenges with Foundation for Louisiana. Rachelle works with staff members and partners to manage outreach, communications and planning efforts that include Louisiana's Strategic Adaptations for Future Environments (LA SAFE), individual and organizational workshop trainings (LEAD the Coast), along with assisting with the grantmaking strategies and of the Coastal Resilience Leverage Fund – FFL's portfolio dedicated to addressing how coastal land loss impacts socioeconomic conditions and exacerbates existing inequities across the state.

Rachelle graduated from Mississippi State University with a Bachelor of Science Degree in Professional Meteorology and later received her Master of Science Degree in Coastal Geomorphology from the University of New Orleans (UNO) where her research focused on marsh erosion in Louisiana's Biloxi Marsh. In addition to her experience in meteorology and coastal geomorphology, Rachelle interned at NOAA River Forecasting Center in Slidell where she gained first-hand experience in forecasting riverine flooding and researched the use of rainfall average recurrence interval to characterize flash flood events for real-time warning forecasting.

Rachelle has applied her scientific background to grow local capacity and knowledge around increased flood risk across the coast, Louisiana's watersheds, and increasingly urbanized environments and how these future risks exacerbate the current socioeconomic conditions within communities across Louisiana.

Kristin Tracz - *Meeting 1*

Kristin Tracz is the Senior Program Officer at Walton Family Foundation. Kristin manages the foundation's Coastal Initiative, which works to ensure the funds resulting from the settlement of the 2010 oil spill litigation are used to support the best projects for restoring productive and resilient wetlands, barrier islands, oyster reefs and other natural systems within the Gulf of Mexico. The promise of meaningful environmental restoration – both in the short term by creating jobs and in the long term by protecting the region's economy – creates an opportunity to unite business and environmental interests. In 2016, the Walton Family Foundation invested $14 million into advancing restoration in the Gulf of Mexico. Kristin also serves as the national co-chair of the Greater New Orleans Funders Network and leads the Network's Coastal Communities Action Table.
Prior to joining the foundation, Kristin was a program officer for the Blue Moon Fund and an energy policy consultant for the Mountain Association for Community Economic Development (MACED). Kristin has a master's of environmental management from the Yale School of Forestry and Environmental Studies, and a B.A. in political and social thought from the University of Virginia.

Harriet Tregoning - *Meetings 1-3*

Harriet Tregoning is the immediate past Principal Deputy Assistant Secretary of the Office of Community Planning and Development at the U.S Department of Housing and Urban Development. She initiated the first ever $1 billion National Disaster Resilience Competition. Her work at HUD encompassed helping states, regions, cities, counties and towns across the country build a strong foundation for resilience in the face of a changing climate, and for a diverse and prosperous economy based on enhancing community quality of place, economic opportunity, fiscal stability, transportation choice, and affordability.

On October 16th, Governor Mapp of the US Virgin Islands appointed Tregoning to the Governor's Hurricane and Resiliency Advisory Committee to help guide reconstruction and resiliency efforts in the U.S. Virgin Islands in the wake of Hurricanes Irma and Maria.

Tregoning was previously Director of the District of Columbia Office of Planning, where she worked to make DC a walkable, bikeable, eminently livable, globally competitive and thriving city. Prior to this she was the Director of the Governors' Institute on Community Design, co-founded with former Maryland Governor Glendening. She served Governor Glendening as Secretary of Planning in Maryland. She was a Loeb Fellow at the Harvard Graduate School of Design in 2004.

She is now working with organizations around the country to help states and localities increase their resilience to future natural and economic disasters.

Andrea Valsagna - *Meeting 2*

Andrea Valsagna is the Secretary of Strategic Development and Resilience and Chief Resilience Officer (CRO) for the City of Santa Fe city, Argentina. She was the former Secretary of Communication for the Municipality of Santa Fe (2007 - 2017); during her management, she developed the press team, the Image and Institutional Communication Program, the Citizen Service System and the Risk Communication Program, among others.

She has extensive experience teaching about risk management and crisis communication, specially related to water risk in Santa Fe city; also in institutional communication for civil society organizations. She has a degree in Social Communication, earned at the School of Science Education from the Universidad Nacional de Entre Ríos. Additionally, she attended postgraduate courses in University Management and Institutional Image. Andrea was Director of Institutional Communication at the Universidad Nacional del Litoral. While working at this institution, she was also founder and director of the newspaper and contributed to science magazines, radio and TV shows. She also has research experience in institutional communication and corporate image, politics communication, and university extension. Moreover, she is an expert in media production and direction, and the design of communication campaigns strategies. She has more than 10 years of experience in political campaigns.

Ulla Varneskov - *Meeting 2*

Ulla Varneskov serves as the Deputy Chief Resilience Officer in the 100 Resilient City initiative with special focus on social resilience and interaction between citizens, public authorities and companies in order to strengthen communities and solutions to both environmental, urban and social challenges. She also works as Coordinator for integration and social housing policies in Vejle Municipality.

David Waggoner - *Meeting 1*

David Waggoner is president of Waggonner & Ball, an internationally active architecture and environment practice located in New Orleans. He is a graduate of Yale School of Architecture, a Fellow in the American Institute of Architects, and a recipient of the AIA Louisiana Medal of Honor. Waggonner & Ball's portfolio, recognized by scores of AIA and other awards, ranges from historic preservation and modern institutional work to urban and ecological design and connects past through present to future.

In the aftermath of Hurricane Katrina, David saw an opportunity for New Orleans to reinvent itself as a sustainable city that embraces its lifeblood: water. He championed a process that examines history, soils, biodiversity, infrastructure networks, urban space and habitation, along with the forces of water. This combination serves as a holistic foundation for design, initiated during the Dutch Dialogues, developed through the Greater New Orleans Urban Water Plan, and now being implemented in multiple projects including the city's winning National Disaster Resilience Competition (NDRC) entry. Related processes and efforts have produced Rebuild by Design and other NDRC awards for Bridgeport and the States of Louisiana, Connecticut, and Virginia.

Ryan Whalen - *Meeting 2*

Ryan Whalen joined The Rockefeller Foundation in 2014. As Director, Global Partnerships, Ryan leads the development of the Foundation's strategic partnerships and oversees the creation of high-impact projects that advance the Foundation's mission and expand its networks around the world.

Prior to joining the Foundation, Mr. Whalen worked in senior capacities in New York City Hall, the United States Senate, and on political campaigns at the city, state, and national levels. Most recently he served in the office of New York City Mayor Michael Bloomberg as Chief of Staff for Government Affairs and Communications. Before that, he was Special Assistant to Senator Charles Schumer, and later became Director of Intergovernmental Affairs. His campaign experience includes serving as Director of Digital and Data for Mayor Bloomberg's 2009 reelection campaign, and in various capacities for the Mayor's 2005 reelection campaign, Kerry for President 2004, and Senate races across the country.

Mr. Whalen received a bachelor's degree with honors from Trinity College and a master's degree in urban planning from New York University's Wagner Graduate School of Public Service. He serves on the Board of Directors of Living Cities, co-chairs the advisory board of The Resolution Project, a social enterprise accelerator, and is a member of Manhattan Community Board 5.

Liz Williams Russell - *Meetings 1-4*

Liz Williams Russell designs and facilitates strategies to support communities influenced by land loss and relative sea-level rise across coastal Louisiana. With a background and training in architectural design, landscape systems, and urban planning, Liz incorporates the complexities of the developed urban ecosystem to promote equitable opportunities in areas altered and affected by land change. Liz directs the activities of the Foundation for Louisiana's Coastal Resilience Leverage Fund, managing coastal grant-making areas with community-based advisors, allies and relevant partners while improving and increasing opportunities for regional collaboration. Liz continues to accomplish this work by encouraging communication and coordination among networks across parishes, coastal basins and statewide. The Fund acknowledges and reinforces the work done by resident leaders and community-based organizations, working to provide opportunities for those most impacted by environmental risks to be key decision makers in how to address them. Liz's role underscores the foundation's unique ability to provide both technical and grantmaking support in order to catalyze local skillsets and resources, to bolster a range of regional organizational strengths, and to integrate related and interconnected activities towards comprehensive statewide response to coastal change.

Eric Wilson - *Meeting 3*

Eric H. Wilson, Deputy Director, Land Use and Buildings at New York City Mayor's Office of Recovery and Resiliency. With 20 years of experience, Eric brings a multidisciplinary perspective to city planning, real estate, and economic development practice. Driven by a passion to grow resilience and equitable cities, he focuses on pragmatic approaches towards results that are socially, economically, and environmentally sustainable.

Eric manages a newly-formed portfolio designed to incorporate climate resiliency into New York City's land use policies and building codes, develop new programs to encourage resilient building retrofits, and advocate for improved flood insurance programs.

He coordinates across New York City's multiple housing and economic development agencies to proactively delineate climate resilience approaches that are fiscally and socially responsible.

Pat Witty - *Meeting 2*

Director, Small Business and Community Services at Louisiana Economic Development (LED)

Lisbet Wolters - *Meeting 2*

Lisbet Wolters serves as the City Architect for Vejle Municipality. In this role, she is in charge of growth and development of urban and rural districts in Vejle Municipality, including the development of resilient cities and residential areas through strategic urban development, smart city initiatives and climate adaptation. She is responsible for the architectonic quality of buildings, urban open spaces and urban environments, and for bringing the municipality's architectural policy into play, through dialogues with and involvement of investors, building consultants, citizens and stakeholders.

Maggie Woodruff - *Meeting 4*

Maggie Woodruff is the Director of Economic Development for the Regional Planning Commission (RPC). In this role she is responsible for preparing and updating the Comprehensive Economic Development Strategy (CEDS) for five parishes in the New Orleans metro area. Maggie also provides technical assistance to member parishes and facilitates grant applications to both the EDA and the Delta Regional Authority, as well as writing and administering EDA grants awarded to the RPC.

Prior to joining the RPC, Maggie served as the Deputy Director for Community and Governmental Affairs at the Louis Armstrong New Orleans International Airport (LANOIA), the New Orleans Regional Chamber of Commerce as the Director of Transportation and Area Councils and the Area Council Manager for Jefferson Parish for the New Orleans Regional Chamber of Commerce.

Maggie holds a bachelor's degree in Business Administration and Master of Urban and Regional Planning from the University of New Orleans. She is a fellow in the Loyola University Institute of Politics, a graduate of the New Orleans Regional Leadership Institute and a graduate of the Committee for a Better New Orleans/Metropolitan Area Committee Leadership Program.

Dr. Beverly L. Wright - *Meeting 2*

Dr. Beverly L. Wright environmental justice scholar and advocate, author, civic leader and professor of Sociology, is the founder and executive director of the Deep South Center for Environmental Justice. The Center addresses environmental and health inequities along the Louisiana Mississippi River Chemical Corridor and the Gulf Coast Region. The Center is a community-university (communiversity-model) partnership organization providing education, health and safety training and job placement for residents in environmental justice and climate-impacted communities within the United States.

Dr. Wright has conducted groundbreaking and significant research in the area of environmental justice and developed a curriculum for use at the elementary school level that has been used by the New Orleans Public Schools. She manages Hazardous Waste Worker Training Programs that embrace a work-based curriculum and a holistic approach to learning for young men and women living near Superfund and Brownfield sites resulting in their employment.

Dr. Wright received the 2003 Distinguished Alumni Award from the State University of New York, Buffalo, the Robert Wood Johnson Community Health Leadership Award in 2006, the 2008 EPA Environmental Justice Achievement Award, the Rainbow PUSH Coalition 2008 Community Award, the Ford Motor Company's Freedom's Sisters Award in July of 2009, the prestigious 2009 Heinz Award as well as the 2010 Beta Kappa Chi Humanitarian Assistance Award bestowed by the National Institute of Science and the Conrad Arensberg Award given by the Society for the Anthropology of Work in 2010. Additionally, she was also recognized by the Grios as one of its 100 History Makers in the Making in 2010. She has also received the Urban Affairs Association's SAGE Activist Scholar Award in May of 2011. She is the author of numerous scholarly books and articles. She co-authored Race, Place & the Environment After Hurricane Katrina from Westview Press, and The Wrong Complexion for Protection: How The Government Response Endangers African-American Communities from New York University. She received a BA from Grambling College and an MA and Ph.D. from State University of New York at Buffalo.

GLOBAL TRANSFORMATION ROUND TABLE

Convening 1 Report Out

concordia

LASAFE Louisiana's Strategic Adaptations for Future Environments

THE ROCKEFELLER FOUNDATION

The WALTON FAMILY FOUNDATION

INTRODUCTION

On July 6-7, 2017, Concordia, with support from The Rockefeller Foundation and the Walton Family Foundation, convened a roundtable of local and global experts to initiate a discussion on global-to-local and local-to-global learning around the concept of community transformation in changing environments. Participants were invited based on their expertise in six planning domains: physical, economic, cultural, social, organizational, and educational, with one locally-based expert and one national or global expert invited to represent each domain. A list of roundtable participants and the two-day agenda are attached (Appendices A and B).

Dr. Anthony Oliver-Smith, Dr. Pam Jenkins, Ella Delio, Harriet Tregoning, David Waggoner, Flozelle Daniels, Steven Bingler

The objectives of this roundtable were threefold:

- To understand ways in which the ongoing work to mitigate risk and increase resilience in coastal Louisiana could help inform the broader global conversation around holistic community transformation catalyzed by environmental change.

- To use the expertise of national and global experts in climate resilience and adaptation to help advise and improve the Louisiana's Strategic Adaptations for Future Environments (LA SAFE) project. And,

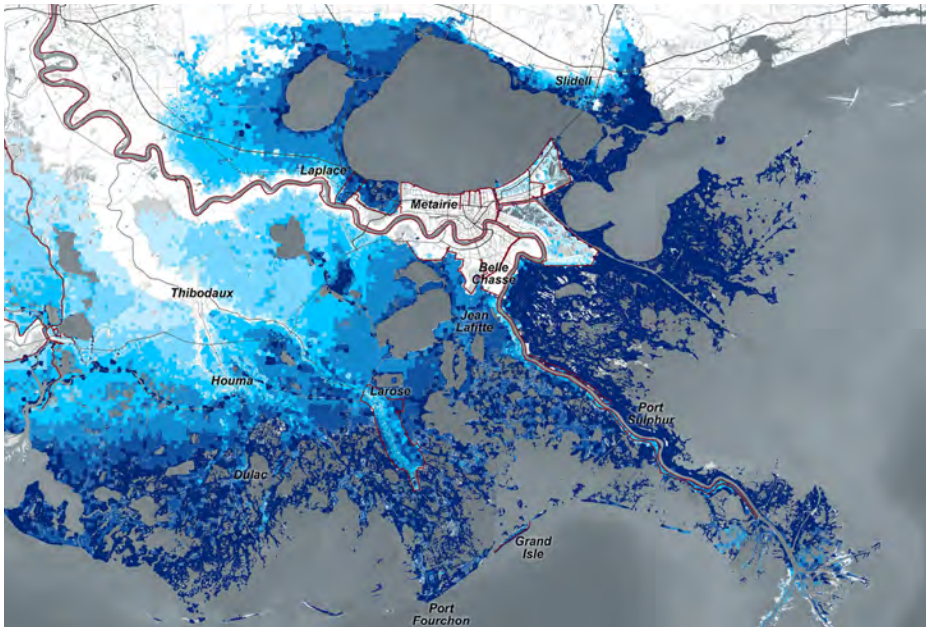
- To better understand how to break down silos and foster better policy, planning and implementation across the six planning domains.

While two days was not enough time to comprehensively address all three of these objectives, roundtable participants identified a number of difficult obstacles to successfully implementing community transformation and developed some concrete next steps that can help inform future conversations around this topic. This summary is organized around six themes resulting from the roundtable discussions.

BACKGROUND

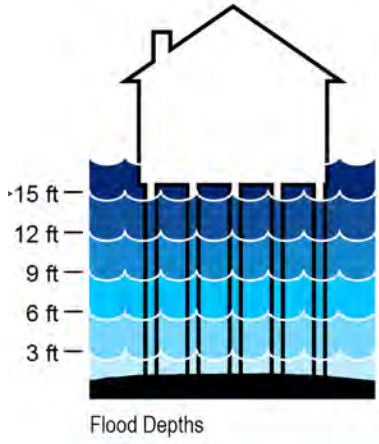
Louisiana is home to over 4.6 million people who live, work, and play in a vibrant natural environment. Louisiana's economy is largely based on natural resources; its wetlands provide habitat that supports the second highest commercial fishing landings in the United States, its waterways transport over 500 million tons of cargo annually and support 380,000 U.S. jobs with an economic impact of $37 billion, and its oil and gas reserves account for over 16 percent of jobs in the state and add an estimated $77 billion to the economy once multiplier effects are calculated. Louisiana is also known for its unique history and culture, blending French, Spanish, African, Native American, and Caribbean cultures. The distinct culture and environment in Louisiana have fostered a tourism economy worth $16.8 billion in 2016.

Louisiana is also one of the regions of the United States most at-risk to changing environments. Sea level rise and subsidence have lead to the loss of 1,900 square miles of coastal land since the 1930s. To put that in perspective, a football field of land disappears into the Gulf of Mexico every 100 minutes. In a business-as-usual scenario, large areas of Louisiana, including some communities, will be underwater by 2067. Other areas could face flood depths of over 14 feet in a 100-year flood scenario. To address this land loss issue and provide adequate protection for communities, industries, wildlife and people to continue to call Louisiana home in the future, the state has embarked on a three pronged strategy of protection (levees), coastal restoration, and community adaptation. The focus of this workshop was primarily on community adaptation, but connected with the efforts underway to advance coastal restoration.



2067 Flood depths without Coastal Master Plan

LA SAFE is currently working in six coastal parishes in Louisiana to help residents take proactive steps towards mitigating risk and increasing resilience to coastal change, using the concept of community transformation to co-design adaptation with communities. For the most at-risk communities, this may mean transitioning from residential areas to recreational, fishing, or industrial destinations. For upland communities, this involves visioning smart growth to receive an influx of new residents in areas with limited land. LA SAFE recognizes that even with swift action, land loss and the accompanying changes it will bring to communities are inevitable, and seeks to identify how and where future investments should be prioritized to increase individual and community health and well-being in light of these changes. Whether communities are resettling, fortifying to remain in place, or receiving displaced populations, the changing environment will affect people's lives and livelihoods. Resilient communities anticipate and prepare for these changes, while also using the change as an opportunity to address long-term stressors that affect communities and individuals on a daily basis. These communities are transforming themselves to prepare for an unpredictable future. With the help of funding from the U.S. Department of Housing and Urban Development's National Disaster Resilience Competition, LA SAFE is currently co-designing resilience plans with six pilot parishes and will fund at least one high priority project per parish that emerges from the planning process.

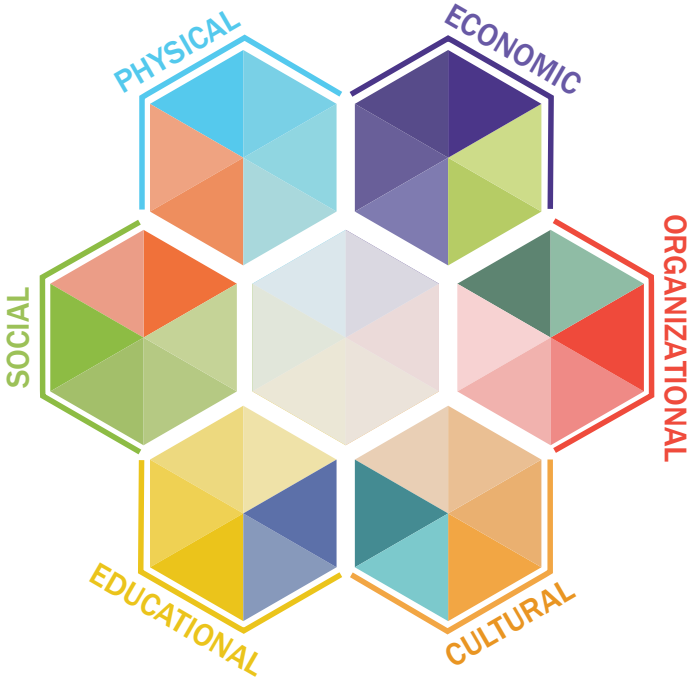


This data was provided by CPRA and originally produced to inform the development of the 2017 Coastal Master Plan.

The State of Louisiana has invested heavily in the coastal restoration arena; projects are selected according to the Louisiana's Coastal Protection and Restoration Authority's (CPRA's) State Coastal Master Plan. The Plan works to mitigate the physical risks precipitated by environmental change and uses a 50-year, $50 billion planning frame with the goal of building and maintain land, reducing flood risk to communities and providing habitats to support the ecosystems that drive Louisiana's economy. By law, the Master Plan is updated every five years, providing opportunity for the evaluation of existing and new projects with updated science and projections. The 2017 Master Plan was approved in June 2017 by the Louisiana State Legislature, and includes 79 marsh restoration projects, 13 structural flood and storm surge protection projects, and 32 nonstructural risk reduction projects that will be implemented throughout coastal Louisiana. CPRA's Master Plan has developed a rigorous scientific methodology to identify the projects that will provide the most physical protection to coastal Louisiana at the best cost, but has not developed an approach to consider socio-economic factors in their decision-making process. On the other hand, LA SAFE has yet to develop a methodology to allocate scarce resources between and within parish projects, but has a rigorous co-design process that puts socio-economic concerns at the center of adaptation planning. Ideally, planners and decision-makers in Louisiana could find a way to combine these two approaches to coastal planning and develop a truly holistic approach to community adaptation and transformation.

Developing a Shared Vision of Community Transformation

The group started by building a common vocabulary and defined community transformation as a participatory and inclusive process that focuses on improving livelihoods and well-being. Community transformation in a changing environment shares power between governments and different stakeholders, particularly stakeholders who have often been marginalized from traditional decision-making processes. It works to empower communities to design and implement policies, programs, and projects that simultaneously reduce environmental risk and address underlying stressors that are detrimental to well-being. From this common understanding, participants began to explore questions related to the roundtable objectives.



Strengths and Uniqueness of the LA SAFE Project

Participants identified several aspects of LA SAFE that make it a unique case study for the process of co-designing community transformation. For example, there have been relatively few regional planning efforts in the United States. Though the LA SAFE project is undertaking planning at the parish level, common challenges and opportunities have arisen among the six pilot parishes, demonstrating the essential need to address climate change adaptation planning at a regional scale. Finding opportunities for cross-parish collaboration can potentially help create more effective solutions to respond to the impacts of climate change and other stressors through leveraging economies of scale and the coordination of efforts based on landscapes rather than administrative boundaries

Additionally, the adaptive nature of Louisiana's Coastal Protection and Restoration Authority's (CPRA) Master Plan, required to be updated every five years, provides an opportunity to incorporate innovative ideas and updated scientific data and projects into the long-term vision. LA SAFE's process and results are still untested and obvious research needs exist in order to more accurately measure its outcomes. Nonetheless, as the metrics by which LA SAFE measures success become better refined, the Master Plan's iterative nature provides new opportunities to incorporate non-physical solutions to risk mitigation and climate resilience in Louisiana communities. As LA SAFE develops analytical rigor for analyzing the socio-economic impacts of coastal change, there are opportunities to incorporate LA SAFE processes and methodology into the Master Plan to create more holistic solutions that put community needs at the center of the discussion around adaptation and planning.

Another unique qualifier in Louisiana is the relative level of income equality that exists in threatened areas, particularly when compared with other coastal areas in the United States that are experiencing change. Louisiana's relatively low level of income-inequality provides opportunities to study the relationships between climate change and economics, and how communities can take actions to address climate change and systemic barriers to economic prosperity together. If successful, this approach could be a model for other regions in Louisiana and beyond. Low level of income-inequality provides opportunities to study the relationships between climate change and economics, and how communities can take actions to address climate change and systemic barriers to economic prosperity together. If successful, this approach could be a model for other regions in Louisiana and beyond.

LA SAFE Community Engagement Meeting 2

Local Opportunities and Challenges Posed by LA SAFE

The LA SAFE project stands to provide many benefits for coastal Louisiana. The participatory approach to planning employed by the LA SAFE project can help build political will in the 6 pilot parishes to address threats from climate change while also engaging marginalized communities, who often face the highest risk but have the least capacity to respond to that risk. Addressing not only the environmental challenges, but also underlying economic, social, cultural, organizational, and educational stressors that affect individual livelihoods and community well-being can lead to value-added solutions to mitigating environmental risk. Additionally, the participatory nature of the project helps build local capacity by engaging people who are not usually a part of the planning process to begin thinking and planning for their futures, with additional opportunities to build local capacity in the implementation phase of the project.

Furthermore, the LA SAFE project capitalizes on local knowledge, developing local solutions to global problems. Place-based solutions that reflect the local context have an easier time building political will and support because they engage people in a process that links communities to a location, builds social capital, and strengthens local capacity. Including local knowledge in decision-making is an essential building block of creating those links between people and place, and building trust between different groups. Although it is a slower process than top-down decision-making, LA SAFE's co-design approach may demonstrate the value of taking the time to garner public buy-in despite short time lines for action.

LA SAFE Community Engagement Meeting 2

Participants also identified several challenges facing the LA SAFE project that need to be overcome if it is to succeed in implementing a co-designed vision that promotes individual and community health and well-being. First among these is the lack of financial resources to fully implement projects and parish plans. Restoration and protection projects have a slight funding advantage at this stage, but even with significant funds from the BP settlement and offshore oil and gas revenues, the state has identified only $20 billion worth of current and future revenue streams thus far, paid out over the next fifteen or so years. Additionally, the State of Louisiana faces an extremely challenging budget landscape: discretionary funds only account for roughly one-third of the state's budget and revenues are down for the 9th year in a row. This financial gap is not only a problem in Louisiana; a 2016 United Nations Environmental Programme report estimated that adaptation will likely cost developing countries between $140 billion to $300 billion annually by 2030, and increase to $280 billion to $500 billion annually by 2050. The lack of readily available public dollars underscored the urgent need to identify innovative and unique financing options from multiple sectors of society to enable community transformation.

The lack of financial resources is complicated by a lack of political capital to spend limited resources on implementing LA SAFE. Building this political capital may help implement LA SAFE projects, as governments that have a level of buy-in are more likely to develop policies and programs to both directly fund priority projects and incentivize financing from other sectors. Unfortunately, in the current political climate, this is unlikely to happen. There is noted resistance to climate change science and climate risk mitigation at the state, parish, and local levels of government. Combined with the current lack of federal leadership on responding to climate change, it will be a challenge to build political capital to implement projects identified as priorities through LA SAFE. Perverse incentives exist at local levels of government in particular to maintain the status quo. Unfortunately, these perverse incentives only increase in more at-risk areas. Acknowledging the serious risks presented by phenomenon such as subsidence, sea-level rise, or changing weather patterns puts local governments' tax base at risk as residents may choose to relocate to safer areas. If parishes take action to protect their residents from increasing risks, they may drive residents out altogether by raising residents' perception of risk, and so these local politics of land use and land ownership deepen the political challenges facing policies to incentivize community transformation.

Participants also noted that a lack of coordination between state government agencies is a lost opportunity to align regular government spending with the state's own assessment of risk laid out in the Master Plan. As a result, state agencies may be using resources – highway funding, capital improvement projects/outlay projects, building public schools – in ways that do not reflect expected population shifts, to move away from risk. This can lead to inefficient uses of resources, including delaying implementation of projects identified through processes like LA SAFE. Part of this lack of coordination may stem from the lack of political will to acknowledge risks from climate change and other environmental stressors. Participants recognized an opportunity for significant leadership from the Governor's office to call on state agencies to coordinate around an integrated vision for investing state dollars in coastal areas, as well as areas that stand to receive the outmigration from riskier communities. Perhaps, more leadership in this field might be available from the governor's office, with state agencies coordinating around that vision. The current lack of state-level coordination has the potential to lead to duplicative, incongruent, or even conflicting efforts for those agencies that are working on coastal and climate adaptation and risk mitigation.

Flozelle Daniels, Samuel Carter, Harriet Tregoning, Liz Williams, Steve Cochran, Tony Pipa, & Ashby Monk

Finally, as mentioned above, financing adaptation, risk mitigation, and community transformation is a major challenge that will require innovative solutions. One potential downfall of the LA SAFE project is that it may be setting high expectations for coastal residents and participants in the innovative co-design process, only to find that there is not available funding for a majority of projects or programs. A good design process with no follow-through runs the risk of discouraging communities from participating in future endeavors and can erode trust between residents and government. Alongside questions of how to finance community transformation are questions of how to value and evaluate the benefits of community transformation. Until we understand how to assess the results of LA SAFE, it may be difficult to apply public or private funding towards the price-tag on some of the proposed projects. Developing a rigorous methodology to evaluate project proposals that emerge from the LA SAFE project would benefit the project in multiple ways. First, it would allow for prioritization of proposals separate from purely political means. This has important and long-lasting impacts on equity, as structural barriers can keep the most vulnerable individuals and communities removed from the political process. Additionally, developing such a methodology may allow for better integration of LA SAFE programs into future iterations of the CPRA Master Plan. Numerous models upon which LA SAFE could draw from to create such a methodology already exist, and include Corporate Social Responsibility (CSR) commitments, ecosystem services valuations, community benefit models, and insurance risk modeling.

National and International Opportunities and Challenges Posed by LA SAFE

Louisiana is far from the only place facing the challenges highlighted during the two-day workshop, but in some ways the state is out in front in confronting these challenges. In that vein, participants identified several ways in which the LA SAFE project can help inform community transformation at the national and/or global level. One example is identifying instances of meaningful intergovernmental collaboration and working to understand what was effective in these cases. Because community transformation involves action at the local-level in response to regional, state, national, and even global drivers of change, collaboration between scales is essential. Additionally, as demonstrated in the LA SAFE project, a regional approach may be most effective in addressing some types of challenges. Collaboration between governmental entities at the same scale of governance could be equally as important as collaboration across scales of governance.

There are also opportunities to develop tool kits that communities can use to initiate stakeholder-driven co-design processes based on the LA SAFE model and other examples of successful engagement. Tool kits and trainings can help decision-makers understand holistic approaches to adaptation that consider more than physical risk mitigation and instead work to address underlying social, economic, education, organizational, and cultural stressors. Such tool kits could include examples of success to demonstrate the benefits holistic approaches can provide to communities in addition to outlining processes for co-design.

LA SAFE parishes: Jefferson, Lafourche, Plaquemines, St. John, St. Tammany, & Terrebonne

There are also many opportunities to bring new faces and new ideas to adaptation planning, both in Louisiana and beyond. Participants discussed the ways in which businesses often carry significant risk in communities and emphasized that there is a vital need to bring business owners into the planning process. Documenting effective methods to engage the business community and identifying and carrying out research that would help clarify the opportunities arising from private sector participation in planning could help diversify the actors involved in the co-design process and produce more effective outcomes. Building new public-private partnerships could also help bring the private sector more fully into the conversation, and help foster new approaches to adaptation. For example, innovation market places seeded by government funding could introduce new technologies and ideas to stimulate community transformation. Given the enormous challenges that climate change presents to coastal regions, identifying new approaches to engaging all sectors of society is vital to successful community transformation.

While numerous opportunities exist to build global capacity for community transformation, a number of difficult challenges still remain. Many of these exist in the organizational domain. Institutional myopia, or short-sightedness, has long been identified as a problem in both business and governmental institutions. Decision-makers, forced to operate in conditions of uncertainty, prioritize the near future because they can more accurately predict what will happen sooner as opposed to the more distant future. This can create situations where rational decisions may be beneficial in the short-term but have the potential to cause harm in the long-term. Additionally, large institutions and businesses are often resistant to change due to their very nature. The durability of such bodies creates an order that is fully rooted in the status quo, with a rational interest in maintaining that status quo as the conditions through which each institution derives and holds on to power and influence.

Participants recognized that there are no easy answers to solve these dilemmas, though continued research into predicting the impacts of climate change, and education and outreach programs aimed at changing public perception of risk to create pressure for actions to address long-term challenges may help shift organizational and institutional responses to uncertainty. A culture change precipitated by changing perceptions of risk may disrupt the status quo enough to galvanize organizations and institutions to respond to climate drivers or risk losing their power and influence.

Matt Lorin, Flozelle Daniels, Courtney Smith, David Waggoner

Participants also discussed the challenges in identifying indicators of community transformation in ways that can help make the economic case for investment in transformation, particularly those aspects or domains that do not have a direct monetary value. The resilience research community has not yet identified good metrics to value intangible benefits such as cultural connection, maintaining social networks, or the mental health benefits from reducing known risks of the impacts of climate change. The question of valuation is complicated by the fact that value can be subjective, varying from community to community and individual to individual. Universal indicators of community well-being can be useful in making comparisons between communities, but may impose a level of standardization that disguises important aspects of resilience in individual communities. Participants also recognized the staggering costs associated with preparing coastal regions for future environmental change, and acknowledged that developing tools to justify those costs as well as tools to measure the success of investments in community transformation are essential steps.

Transferring Knowledge between LA SAFE and Other Community Transformation Efforts

Given the enormous task that coastal regions face in responding to the predicted impacts of climate change, there need to be some better mechanisms to share experiences, successes, and lessons learned between different regions and between decision-makers and stakeholders at different levels of governance. Participants identified several potential mechanisms to share knowledge between regions and scales.

Flozelle Daniels

Building on the identified opportunity for increased collaboration between government entities, participants suggested informing and educating multiple levels of government on the work of LA SAFE and embedding the project's operations into government at all levels. Coastal region risk managers could build relationships between different levels of government to enable future opportunities for collaboration, planning, and investment by strategically engaging government officials to help solicit buy-in from them for the LA SAFE process and goals. Partnering with academic institutions to study the outcomes of LA SAFE could contribute to the improvement of the LA SAFE project and also help spread the best practices and lessons learned from LA SAFE to other sectors and regions. Additionally, academics could seek opportunities to co-author articles with the project leaders of LA SAFE to help resolve knowledge gaps identified through the process and improve the general understanding of community transformation.

Participants also identified opportunities for stakeholders to share narratives of their experiences, including cross-regional gatherings and storytelling through song, video, websites, VoIP or other new technologies such as virtual reality. Opportunities to share knowledge and experience at the grassroots and the decision-making levels are equally important to building a common base of knowledge for community transformation. The LA SAFE process of co-design emphasizes the parallel and connected tracks of grassroots and top-down decision-making, and the importance of sharing information, knowledge, and experience between these different approaches to achieve more sustainable results.

David Waggoner

Potential Next Steps

At the end of the roundtable, participants discussed potential next steps to both improve the LA SAFE process and provide insights into community transformation in general. These next steps are organized into research needs, community-based work, and overall policy and strategy.

Building a Systemic Vocabulary Activity

Participants identified several lines of research that could help contribute to the broader understanding of community transformation. The state has invested heavily in ongoing research, led by the Water Institute and CPRA, which seeks to understand how the coast is physically transforming and attempts to predict how it will change in the future in order to inform future planning efforts and decisions. An investment in complementary research that seeks to understand how physical transformation affects the social and cultural needs of coastal residents, as well as the effectiveness of different kinds of approaches to address those needs, would help inform the dialogue. Such research could help decision makers and stakeholders alike to plan and prepare for environmental change. An additional line of research should be to work with communities to develop indicators for healthy communities in Louisiana. This work could complement the efforts of the LA SAFE project by providing metrics upon which allocation of implementation resources decision-making could be based. Such research could not only help decision-makers prioritize scarce resources, but could be an educational tool through which communities could raise their own awareness of potential risks and possible opportunities.

A systematic review or survey of policies and programs that have been successful in transforming communities in a single or in multiple planning domains could be an additional valuable tool to help inform ongoing work in Louisiana and elsewhere. Such work could also be the first step in developing guidelines for best practices in community transformation. Finally, further research is needed on possible sustainable public and private financing scenarios. The question of how to pay for resilience and adaptation programs and projects has been one of the major roadblocks to successful implementation thus far both in and outside of Louisiana. Considerations of equity in financing resilience and adaptation add a layer of complexity to this type of research, but understanding how to address pre-existing legal and structural barriers that may impede the access of some groups to such financing is important to achieving whole community transformation.

LA SAFE Community Engagement Meeting 1

Academic or government research into the above questions can complement and be informed by continued engagement with affected communities. One suggestion for continued community engagement is to work with communities to visualize futures in different action-scenarios to help communicate both the future risks and opportunities.. Such scenarios might include various levels of completion of the CPRA's Master Plan and a no-action scenario. Visualizations could include desired policy outcomes, such as a focus on equity and how to achieve it in sending, receiving, and fortifying communities. outcomes, such as a focus on equity and how to achieve it in sending, receiving, and fortifying communities. The organization or entity leading visualization efforts should work closely with traditionally marginalized groups to help bolster a diversity of perspectives and needs. Such visualizations could be part of a longer-term effort to change the on-the-ground conversation around climate-related risk and enhance public awareness and support for risk mitigation programs like LA SAFE.

Finally, developing an overall strategy to obtain continued engagement and buy-in for LA SAFE at both the grassroots-level and among leadership in the public, private, and non-profit sectors is important for the long-term success of this project. At the grassroots-level, it's important that LA SAFE goes beyond planning to implementation in the communities it seeks to assist. The community needs to be continually engaged in project and program prioritization, financing new projects and programs, and the design and construction or implementation of new projects and programs. The State of Louisiana runs the risk of fostering mistrust for future endeavors if the project ends with only planning and no implementation. Additionally, LA SAFE needs to continue building community capacity and support by raising individual and collective risk awareness. Otherwise, individuals and communities will continue to develop in unsafe areas due to the sense of physical security the CPRA protection projects may foster, thereby increasing the potential short-term costs to the state from flooding and hurricanes as well as the ultimate costs of social and economic disruption and relocation. Such follow-through requires considerable buy-in and coordination at the state level and with the private sector. The current governance model, in which the CPRA bears sole ownership over the Master Plan and the Office of Community Development is the lone agency working on LA SAFE, may be unsustainable in the long run due to the need for coordination across multiple agency jurisdictions and resources to be truly effective. This is an opportunity for the state's top leadership to coordinate resources efficiently and effectively, in the service of responding to changing risk profiles. A targeted political strategy to align the leadership priorities with the physical, cultural, economic, social, educational, and organizational opportunities identified through LA SAFE, as well as the development of a science-based approach to tracking the impact of implementation, are needed. This may lead to further opportunities for the development of innovative approaches that encourage holistic community transformation.

Liz Williams

This two-day roundtable perhaps raised more questions than it answered, but the discussion provided a basis for continued conversations and actionable items. A final session invited representatives from local institutions to reflect on the questions and conclusions that the roundtable participants had arrived at through their discussions. In this final session, there was a general sense among the individual organizations that the challenges facing Louisiana are immense, and there is a need to coordinate and collaborate to help coastal Louisiana develop a prosperous, safe, thriving future. One proposal made during this final session is a National Disaster Resilience Competition (NDRC)-style grant program for Louisiana, building upon the resources the state has already allocated for parish-level responses to mitigating risk, where philanthropy would work with communities to build local capacity to respond to a state or foundation-issued request for proposals for coastal resilience programs and projects. Such a program would reward local entities that are forward- thinking about risk while also taking steps to ensure equitable opportunities for success, with the hope that rewarding these forward-leaning communities could encourage some of the laggards to take action as well.

In closing, LA SAFE and Concordia would like to thank all the participants for their time and thought leadership on community transformation in changing environment, as well as The Rockefeller Foundation and Walton Family Foundation for their generous funding of the roundtable. It is hoped that this convening will be the start for continued discussions and collaborations into the future.

Appendix A: Agenda

GLOBAL TRANSFORMATION ROUND TABLE

COMMUNITY PLANNING FOR CHANGING ENVIRONMENTS

AGENDA

DAY ONE- JULY 6, 2017

PART ONE: OVERVIEW OF COMMUNITY TRANSFORMATION

8:00-9:00 am	**Continental Breakfast**
9:00-9:15	**Introductions**
9:15-9:30	**Overview of Roundtable Goals & Objectives**
9:30-10:15	**Community Transformation:** *Building a Systemic Vocabulary*
10:15-10:30	**Break**
10:30-10:45	**Global Adaptation & Transformation Best Practices Overview**
10:45-11:15	**Small Group Breakout Discussions on Global Adaptation & Transformation**
11:15-12:00	**Regroup & Report Out on Breakout Discussions**
12:00-1:00	**Lunch**

PART TWO: GLOBAL TO LOCAL LEARNING: LESSONS FOR LOUISIANA FROM THE GLOBAL EXPERIENCE

1:00-2:00	**Overview of LA SAFE Project & the Coastal Protection & Restoration Authority**
2:00-2:45	**Breakout Discussions:** *Best practices for integrated community transformation in Louisiana*
2:45-3:00	**Break**
3:00-3:30	**Roundtable:** *Developing Recommendations for LA SAFE from Global Experiences*

PART THREE: LOCAL TO GLOBAL LEARNING- WHAT GLOBAL INITIATIVES CAN LEARN FROM LA SAFE

3:30-4:15	**Breakout Discussions:** *Thinking and learning across scales*
4:15-5:00	**Roundtable Discussion:** *Transferring best practices and experience between scales and across regions*
6:30-9:00	**Reception & Dinner at Shaya**

concordia

LASAFE Louisiana's Strategic Adaptations for Future Environments

THE ROCKEFELLER FOUNDATION

The WALTON FAMILY FOUNDATION

GLOBAL TRANSFORMATION ROUND TABLE

COMMUNITY PLANNING FOR CHANGING ENVIRONMENTS

AGENDA

DAY TWO- JULY 7, 2017

PART FOUR: BREAKING DOWN SILOS- MULTIDIMENSIONALITY OF COMMUNITY TRANSFORMATION

8:00-9:00am	**Continental Breakfast**
9:00-10:40	**Domain Round Robin Activity**
10:40-11:00	**Break**
11:00-11:30	**Roundtable Discussion:** *Understanding the synergies between domains*
11:30-12:00	**Roundtable Discussion:** *Recommendations for integrating domains in policies, programs, and projects*
12:00-1:00	**Lunch**

PART FIVE: COLLABORATIVE LEARNING AND NEXT STEPS

1:00-2:00	**Recommendations for Global-Local-Global Learning**
2:00-2:30	**Next Steps**
2:30-3:00	**Break**
3:00-3:15	**Summary of Convening**
3:15-5:00	**Input from Local Institutional Leaders**
5:00	**Adjourn & Play**

concordia
LASAFE Louisiana's Strategic Adaptations for Future Environments
THE ROCKEFELLER FOUNDATION
The WALTON FAMILY FOUNDATION

Appendix B: List of Participants

Jainey Bavishi
Director of the Office of Recovery and Resiliency, City of New York
Steven Bingler
Founder and CEO, Concordia
Samuel Carter
Managing Director, Resilience Team and Global Resilience Partnership, The Rockefeller Foundation
Andrea Chen
Executive Director, Propeller
Steve Cochran
Associate Vice President, Coastal Protection, Environmental Defense Fund
Flozelle Daniels
CEO and President, Foundation for Louisiana
Ella Delio
Director of Environmental and Regional Initiatives, Greater New Orleans Foundation
Dakota Fisher
Resilience Program Analyst, State of Louisiana's Office of Community Development
Dr. Pam Jenkins
Professor Emeritus of Sociology, University of New Orleans
Dr. Laurie Johnson
Principal and Founder, Laurie Johnson Consulting
Joseph Kimbrell
CEO, Louisiana Public Health Institute
Matt Lorin
President, XQ Institute
Dr. Calvin Mackie
Founder and CEO, STEM NOLA
Dr. Ashby Monk
Executive and Research Director, Stanford Global Projects Center
Dr. Anthony Oliver-Smith
Professor Emeritus of Anthropology, University of Florida
Dr. Robert Olshansky
Professor and Head of Urban and Regional Planning, University of Illinois
Tony Pipa
Senior Fellow – Global Economy and Development, Brookings Institute
Mathew Sanders
Resilience Program and Policy Administrator, State of Louisiana's Office of Community Development
Erin Shew
Special Projects Coordinator, Concordia
Courtney Smith
Program Associate, Resilience Team, The Rockefeller Foundation
Kristin Tracz
Gulf of Mexico Program Officer, Walton Family Foundation
Harriet Tregoning
former Principal Deputy Assistant Secretary for the Office of Community Planning and Development, Department of Housing and Urban Development
David Waggoner
President, Waggoner and Ball Architects
Liz Williams
Coastal Community Resilience Program Officer, Foundation for Louisiana

GLOBAL TRANSFORMATION ROUNDTABLE

Convening 2 Summary- Buras, March 14-15, 2018

Vejle, Denmark

Southeast Louisiana

Da Nang, Vietnam

Santa Fe, Argentina

TABLE OF CONTENTS

INTRODUCTION

On March 14th and 15th, 2018 Concordia, UNO CHART, and Foundation for Louisiana, with support from The Rockefeller Foundation, held a convening of local and global experts to further a discussion on global-to-local and local-to-global learning around the concept of community transformation in changing environments. Participants were invited based on their expertise in a variety of fields including 100 Resilient Cities representatives from Vejle, Denmark, De Nang, Vietnam, and Santa Fe, Argentina. The two-day agenda is included in this summary document.

The objectives of this roundtable were threefold:

- To understand ways in which the ongoing work to mitigate risk and increase resilience in coastal Louisiana could help inform the broader global conversation around holistic community transformation catalyzed by environmental change.

- To use the expertise of national and global experts in climate resilience and adaptation to help advise and improve the Louisiana's Strategic Adaptations for Future Environments (LA SAFE) project. And,

- To better understand how to break down silos and foster better policy, planning and implementation across multiple sectors of government, non-profits, and private entities.

While two days was not enough time to comprehensively address all three of these objectives, roundtable participants identified a number of difficult obstacles to successfully implementing community transformation and developed some concrete next steps that can help inform future conversations around this topic.

Global Resilient Cities

During the first morning, representatives from three of The Rockefeller Foundation's "100 Resilient Cities" shared their experience and perspectives with the group.

De Nang, a large city on the coast of Vietnam, had four goals: be a peaceful city, a dynamic city, a more connected city, and one that is prepared to recover from disasters. They designed and built resilient houses for low-income residents. These homes were designed to help mitigate wind damage and were two stories tall so that residents could escape from flooding within their own home. A river basin organization exists to assist in flood preparation. Their function is to coordinate actions across government, provincial boundaries to have a more holistic approach to flood preparation. There are current attempts to relocate populations to higher ground.

Xuan (Spring) Thi Quach, Center for Consultancy on Sustainable Development De Nang, Vietnam Representative

Santa Fe, Argentina, which sits between two rivers, experienced a devastating flood in 2003. The representatives said that the safety of the residents is their focus, from flood risk and crime. They mentioned wanting to incorporate the outskirt areas of the city to create a more unified force to combat the issues at hand. They would also like to develop more city pride, which would help keep debris and trash out of drainage systems. They also mentioned the difficulty in communicating the threats of climate change when most residents have more immediate issues to worry about.

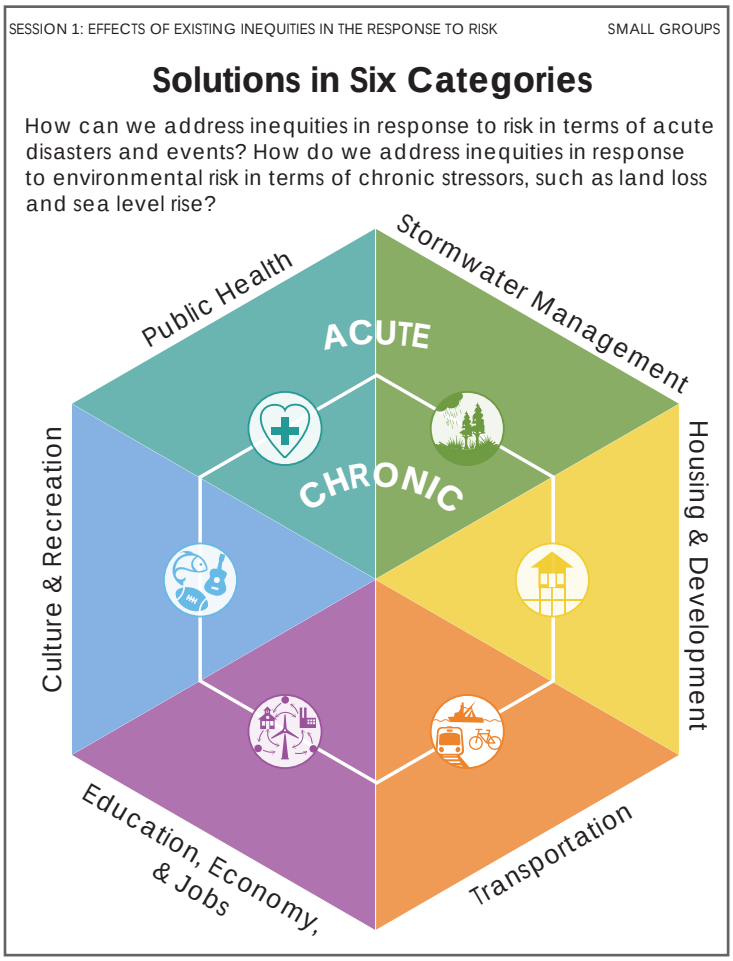
Andrea Victoria Valsagna, Chief Resilience Officer and Sara Lauria, Architect Santa Fe, Argentina Representatives

Vejle, Denmark is a city with a growing wealth gap. This is in large part due to increasing immigration of low-income people. However, the high-income population resides closer to the water, which puts them at higher flood risk. The representatives from Vejle have been tasked with finding a strategy to communicate risk with hope and not just fear. They've developed unique ways to communicate these risks with their community. They developed a VR (virtual reality) experience to communicate possible flood risk. They also discussed the city's "community councils". Each community is invited to participate. The councils are given direct access to politicians and a small fund to catalyze connections and to assist with further fundraising.

Ulla Varneskov, Deputy Chief Resilience Officer and Lisbet Wolters, City Architect Vejle, Denmark Representatives

Day 1 | Equity Discussion

The first session of the convening opened with a discussion around the effects of existing inequities in risk response, facilitated by President and CEO of the Foundation for Louisiana, Flozell Daniels. This helped frame the following topics around equitable solutions. In the first activity, participants were asked how we can address inequities related to acute disasters, such as hurricanes, and chronic stressors, such as sea level rise, population shifts, and increasing flood insurance costs. They were asked to discuss these topics in relation to different planning categories, sectors, and governmental scale. The categories were Education, Economy and Jobs; Housing and Development; Transportation; Public Health; Culture and Recreation; and Stormwater Management. Different post-it colors represented the sectors, which were the public sector, the private sector, philanthropy, NGO's, and the community. Where solutions intersected with government responsibility, participants indicated which scale, from local to federal.



One of the main themes discussed by attendees during the Equity activity was communication. They described the need for honest and clear communication, citing a lack of trust from residents towards the government as a major issue to address. One suggestion was to cultivate "local heroes," or trusted residents that can act as mediators between the government and citizens, helping to engage the local community on a more regular basis.

Attendees discussed the impact of climate change on low-income, minority populations who are disproportionately located in high-risk flood and disaster areas. There were multiple calls to ensure that honest, accurate, and accessible information be available so that the most vulnerable populations can make educated decisions about the flood risks they face. Below is a summary of what attendees said within each planning category.

Education, Economy, and Jobs: Education was a major theme of the equity conversation. Attendees discussed the importance of educating the public on the risks of weather and natural disasters. One group discussed and prioritized education as a means of strengthening personal agency. They suggested that the more informed residents are about potential storm risks, the more they will be able to make smart decisions when the storms eventually arrive. Requiring environmental education courses in schools was one of the solutions suggested. Attendees also discussed how economic security intersects with risk vulnerability. Those with lower incomes are often disproportionately affected by acute disasters, and they may be unable to afford the costs of evacuating or the price to protect and insure their homes. Attendees also discussed the ways natural disasters impact populations other than physical harm or damage. These include loss of jobs and income, evacuating to areas where they feel unwelcome, and mental and emotional stress.

Housing and Development: Attendees discussed homes in high flood risk areas. They dissected the extra challenges that low-income and minority residents face. Many of the highest risk areas are home to low-income residents, so they bear the brunt of disaster events. Participants pointed out that many of these people cannot afford basic needs like quality food, health services, and insurance. Evacuation incurs temporary housing costs, such as lodging, food, and gas. Alternatively, resident's ability to return after a disaster was cited as another difficult hurdle. Attendees said many low-income residents risk eviction if they are unable to return. Attendees suggested that governments should strengthen renters' rights, NGO's provide financial and homeowner education classes, and government and the private sector build storm-ready, higher-density affordable housing in low-risk areas.

Transportation: For the transportation category attendees focused on improving evacuation routes and options for residents. Aside from addressing road flooding, attendees wanted evacuation options such as free shuttles to shelters for residents without cars or the ability to evacuate themselves. Some groups talked about building more connections from high-risk areas to job opportunities and essential services.

Public Health: Many attendees focused on the severe impact disasters can have on people. Disasters are high stress events that can affect both mental and emotional health. Attendees were concerned about how to approach these "hidden" effects on residents, suggesting more thorough documentation of mental and emotional repercussions of storms. Participants discussed access to health facilities and insurance, greenspace, and healthy homes. They focused on the chain reaction that occurs in high-risk areas: the residents that can move, do, which reduces hospitals' patient counts. The hospitals serving high-risk areas close, and then the most vulnerable residents lose access to the healthcare they require. On a different sub-topic, one group discussed strategies to address crime. They suggested approaching crime through a public health lens, identifying the causes (lack of education, jobs, transportation, and services), starting with the youth.

Culture and Recreation: In this category, attendees discussed strategies to promote community cohesion and celebrate culture, such as seafood, music and language. They suggested investing in community spaces to support programs that highlight and promote these community strengths. These spaces can be leveraged to encourage healthy living and physical fitness. Participants discussed strategies to put clear value in culture and recreation sectors through policy and programs. They also mentioned the variety of cultures that exist here, including non-English speakers. Participants suggested having translators and translated materials for important documents and services.

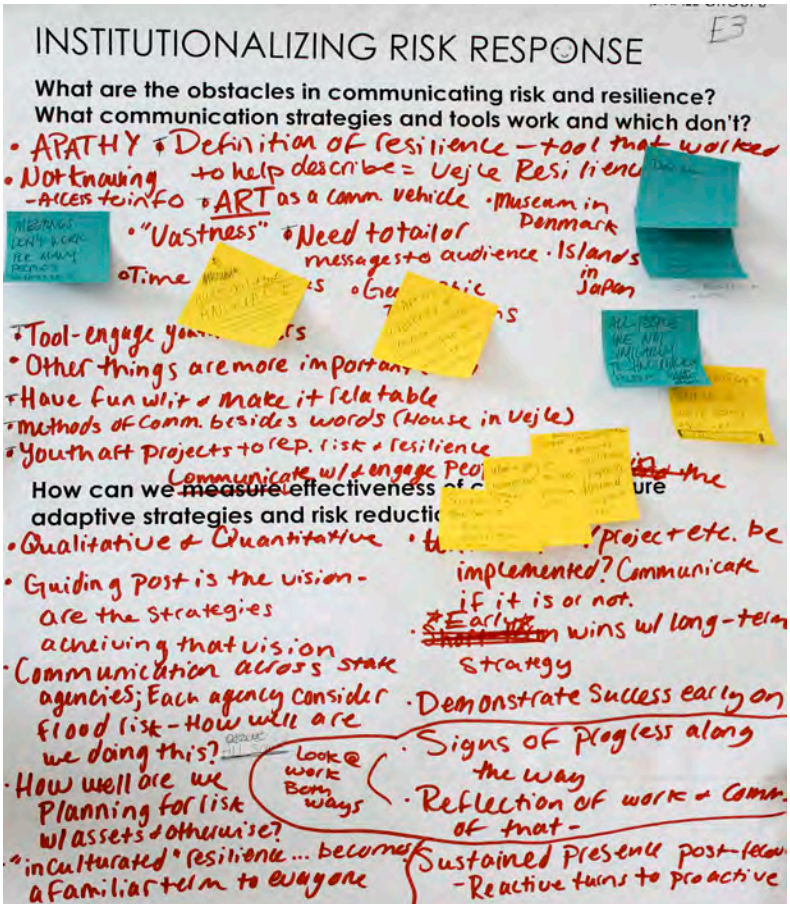
Stormwater Management: Groups emphasized the importance of clear communication about risk and "going to where they are" to disseminate information. The communication approach and language should also aim at building trust between residents and outreach organizations. Attendees said that smart stormwater regulations should be required for development. Along with this, a group said that equity had to be at the forefront during zoning and land use planning.

Day 1 | Communication Discussion

Activity 2 challenged attendees to identify the largest threats and road blocks for effective communication and engagement with the public, and to brainstorm solutions for these hurdles. Attendees cited a general lack of understanding of the threats from storms, subsidence, and climate change as the largest challenge. This has many causes including distrust towards the organizations providing the information, the breadth and complexity of the problem, and apathy about the long-term challenge.

Attendees agreed that going to where residents live, work, and play to talk to them as equals was a strong step in the right direction. They suggested using language that does not sound academic or scientific. Many groups suggested the need for this information to be illustrated visually and to be available at festivals, curated spaces, and other events to make coastal risk more tangible. Attendees wanted to cultivate a stronger sense of togetherness and to create networks of support outside what the government provides. They said the problem would seem less daunting when everyone is working together towards the same goal.

Attendees stressed the importance of data that are accurate, updated, comprehensive, and from transparent and trustworthy sources. If armed with good information, communities and networks can make more informed decisions. There were also calls for more breadth and depth in data collection including systems to measure effective development practices, degree of trust in local governments, the social impacts of disasters, and how race and income intersect with all the above.



Participants would like to see more innovation in the disaster and coastal adaptation/resilience fields. Louisiana has experienced and recovered from more water-related disasters than any other state. Attendees would like to leverage this reality to create an adaptation, water management, and disaster recovery economy here, attracting companies to use Louisiana be the "testing grounds" for these sectors. This can include retrofitting existing buildings to cut costs after disasters and finding more cost-effective solutions for post disaster recovery. Attendees would like to see more proactive actions to disasters, as opposed to exclusively reactionary ones.

Day 2 | Implementation Discussions

The final day featured the entire group of attendees participating in two facilitated conversations. Harriet Tregoning, the immediate past Principal Deputy Assistant of Housing and Urban Development, facilitated the first conversation about borders, jurisdictions, and migration. Joyce Coffee, founder and president of Climate Resilience Consulting, facilitated a discussion about implementation and next steps. Both discussions expanded on the themes and topics discussed the previous day. Attendees expressed the desire to continue communication and coordination between governmental and non-governmental organizations, and between different government agencies The international representatives brought a unique perspective that highlighted many of the inequities that Louisiana and America keep swept under the rug. They also said to focus on the successes and take strength and pride in what everyone has accomplished.

Again, communication and equity were central to the conversation. Topics included what "risk" means beyond flood risk. When the next disaster comes, some minority populations might move to "low-risk" flood zones where the existing community is more challenged by issues around race and equity and may target minorities with inequitable zoning policies, social hostility, and other forms of exclusion. The conversation focused on how to adapt to climate change without exacerbating or replicating historic racial/geographic inequities. The challenge is acting in a unified manner to communicate risk, build trust, and implement equitable policies in the context of an economically and racially stratified society. In closing, the group discussed the landscape of actors and what they could each do to help build the adaptation sector to work in concert to achieve the goals discussed during the convening.

Outcomes

Themes

The University of New Orleans Center for Hazards Assessment, Response & Technology (UNO CHART) documented the two day meeting. Below are the themes that emerged from the UNO CHART scribe's notes.

- Understand equity in planning to promote climate justice and equitable adaptation.
- Planning and financial support for climate refugee regions.
- Participatory planning: the community as the expert.
- Multicultural risk communication techniques.
- Passion/power mapping for unified climate change adaptation.
- Flexible/adaptable climate change policy guided by indigenous wisdom.
- Social investment in all sectors to foster citizen empowerment.

Strategies and Actions

Strategies and actions listed below are based on the notes taken during the final conversation facilitated by Joyce Coffee. Attendees discussed needs, goals, and strategies without identifying a specific organization or framing them as goals and strategies to enact across all organizations and individuals.

- Leverage tools to different communities.
- Help ID tools for my community.
- Condense data and resources.
- Determine passion and skills.
- Connect expertise.
- Create a place to convene and empower.
- Consider and plan knowing that humans will resilient and empowered at the neighborhood level.
- Intersect with public health to inspire changes small to large.
- Improve language access to rural areas.
- Prioritize pre-disaster planning to post-disaster funding.
- Cultivate "local heroes".
- Make power through shared loss for future resilience. Use discussions to illustrate communal loss.

Additionally, attendees suggested actions that individual organizations would like to pursue in the coming years.

BISCO

- Educate on existing tools, policies, regulation, and master plan.

Concordia

- Continue community driven process from 6 parishes to all 63.
- Create "passion map" to connect the network.

CPRA

- Rename "non-structural" program.

Foundation for Louisiana

- Develop requirements to work together vs. "we are here to help".

Governor's Office of Coastal Activities

- Think of expansion of the problem e.g. economic development at the table with CPRA.
- Expand the latitude that engineers, scientists have.

Gulf Coast Center for Law and Poverty

- Develop a more social connection- beer, crawfish, line dance; use culture and tradition.
- Reconsider how we value people and communities.

Tulane Environmental Law Clinic

- Advance meaningful engagement through collaborative spaces e.g. FDA for LA bring in other points of view with jurisdictional authority.

UNO CHART

- Translate expertise to new knowledge for practice (more inclusive).

UNO CHART Evaluation

Below are the results from UNO CHART's meeting evaluations.

What was the most important thing you learned from the convening?

- To find out realities and different views on similar problems in distinct places in the world.
- There is genuine interest in addressing this topic at all levels.
- To know the different perspectives on resilience. To know the projects of LA SAFE.
- Think a lot of people have same ideas.
- How eager participants were to continue deep community engagement throughout the process.
- Programs such as LA SAFE are much needed in communities.
- Must do a better job of asking the right question; must include the community, especially those impacted; give them equal weight.
- Much work to be done.
- Today I'm learning that everyone is not afraid to share their opinion; we all put it on the table and solve the problem.
- To increase an awareness of how each of our own work is affected by racial inequity and how we are able to create more just systems in our work to advance climate resilience.
- A set of new and more diverse people who are working to improve resilience and a better understanding of what it truly takes to get there.
- The diversity of experiences and challenges of the people in SE LA confronting coastal erosion and climate change.
- This was a great opportunity to grow, learn, collaborate, and network from and with really amazing people.
- Shared resources and administrative function can reduce costs to better serve communities at risk.
- The different perspectives that need to be included and the understanding of power differentials and structural racism; the critical role of grassroots organizations in establishing a base of trust and legitimacy.
- The work that each stakeholder is engaged in across the globe.

What would you recommend to improve the convening?

- Have cities/towns travel to sites where the problem exists and to see interventions projects.
- More than visioning. I would have liked to conclude with a more concrete action plan for all - one that requires and promotes accountability.
- Maybe we can show the Santa Fe experience during the convening in concrete projects. I suggest to include a visit to the protection system. In general, it was wonderful.
- Workshop in parishes.
- Sound/volume was sometimes touch; Report-backs from breakouts went long – tell people to keep it tight!
- Talk more about those on the ground doing the work.
- Should have included a field trip to see the water impact in Buras and have a local citizen share their experience first-hand.
- Perhaps provide small amount of time for people to re-group with their sphere (gov. non-profit, philanthropy) to plan next step and react to conversation and develop concrete action.
- More space and time for organic conversations without moderators/white dudes regulating folks' opinion.
- Don't be afraid about conflict because everyone's idea is not the same.
- Consider how we can keep engaging in advance of the next formal meeting in Italy.
- A field trip to see surrounding the environment and to talk with locals living in the area.
- Microphones.
- No more plastic & styrofoam; recycle otherwise.
- Microphones needed for speakers; create a directory of organizations and contact information.
- More clearly articulated expectations for the convening, even if the outcomes expected are less concrete, like growing a shared lender study.
- Better facilitation of the break-out groups.

Anything else?

- The translation to English wasn't good because he lacked the specific technical vocabulary.
- Section 2 - the questions weren't clear.
- Thank you.
- Think-tanks like this is needed.
- Should of must have an opportunity to keep the initial core group connected through a quarterly conference call on what progress or non-progress that are happening or impacting LA. Clearly define a purpose statement or a "North Star" destination; recycle should be part of the venue.
- Equip more people for more spaces.
- Overall, I thought the convening was a very valuable event and I am very grateful to be able to participate. Discussions of equity, race, social justice, the systems of inequality we inherit/perpetuate has been refreshing.
- Thanks for the great experience and bringing together such a diverse group of people, organizers and professionals.
- I would have liked more time spend on problem solving as it directly relates to the work we are trying to do.
- I enjoyed learning a lot about personal information about others. By doing so, one can get a better understanding to advance the work we did.
- I'd like to see the organization of a unified force for advocacy on resiliency.

Purpose of Meeting	**The purpose of the meeting was clearly stated.**	
Value	**Frequency**	**Percentage**
Strongly agree	7	35%
Agree	12	60%
Neither Agree nor Disagree	0	0%
Disagree	1	5%
Strongly disagree	0	0%
	20	100

LA SAFE	**The meeting presentation was effective.**	
Value	**Frequency**	**Percentage**
Strongly agree	12	60%
Agree	8	40%
Neither Agree nor Disagree	0	0%
Disagree	0	0%
Strongly disagree	0	0%
	20	100

Purpose of Meeting	**The purpose of the meeting is important to me.**	
Value	**Frequency**	**Percentage**
Strongly agree	15	75%
Agree	5	25%
Neither Agree nor Disagree	0	0%
Disagree	0	0%
Strongly disagree	0	0%
	20	100

LA SAFE	**The speakers presented information in a clear manner.**	
Value	**Frequency**	**Percentage**
Strongly agree	13	65%
Agree	7	35%
Neither Agree nor Disagree	0	0%
Disagree	0	0%
Strongly disagree	0	0%
	20	100

Session 1	The meeting presentation was effective.	
Value	**Frequency**	**Percentage**
Strongly agree	8	40%
Agree	11	55%
Neither Agree nor Disagree	1	5%
Disagree	0	0%
Strongly disagree	0	0%
	20	100

Session 1	The speakers presented information in a clear manner.	
Value	**Frequency**	**Percentage**
Strongly agree	10	50%
Agree	9	45%
Neither Agree nor Disagree	1	5%
Disagree	0	0%
Strongly disagree	0	0%
	20	100

Session 1	The discussion was interesting and informative	
Value	**Frequency**	**Percentage**
Strongly agree	11	55%
Agree	8	40%
Neither Agree nor Disagree	1	5%
Disagree	0	0%
Strongly disagree	0	0%
	20	100

Session 1	I was able to express all of my ideas during the discussion.	
Value	**Frequency**	**Percentage**
Strongly agree	8	40%
Agree	9	45%
Neither Agree nor Disagree	3	15%
Disagree	0	0%
Strongly disagree	0	0%
	20	100

Session 2	The meeting presentation was effective.	
Value	**Frequency**	**Percentage**
Strongly agree	6	30%
Agree	10	50%
Neither Agree nor Disagree	3	15%
Disagree	0	0%
Strongly disagree	1	5%
	20	100

Session 2	The speakers presented information in a clear manner.	
Value	**Frequency**	**Percentage**
Strongly agree	5	25%
Agree	10	50%
Neither Agree nor Disagree	4	20%
Disagree	1	5%
Strongly disagree	0	0%
	20	100

Session 2	The discussion was interesting and informative	
Value	**Frequency**	**Percentage**
Strongly agree	7	35%
Agree	7	35%
Neither Agree nor Disagree	5	25%
Disagree	1	5%
Strongly disagree	0	0%
	20	100

Session 2	I was able to express all of my ideas during the discussion.	
Value	**Frequency**	**Percentage**
Strongly agree	9	45%
Agree	8	40%
Neither Agree nor Disagree	2	10%
Disagree	1	5%
Strongly disagree	0	0%
	20	100

Session 3	The meeting presentation was effective.	
Value	**Frequency**	**Percentage**
Strongly agree	11	58%
Agree	7	37%
Neither Agree nor Disagree	1	5%
Disagree	0	0%
Strongly disagree	0	0%
	19	100

Session 3	The speakers presented information in a clear manner.	
Value	**Frequency**	**Percentage**
Strongly agree	12	63%
Agree	6	32%
Neither Agree nor Disagree	1	5%
Disagree	0	0%
Strongly disagree	0	0%
	19	100

Session 3	The discussion was interesting and informative	
Value	**Frequency**	**Percentage**
Strongly agree	14	74%
Agree	5	26%
Neither Agree nor Disagree	0	0%
Disagree	0	0%
Strongly disagree	0	0%
	19	100

Session 3	I was able to express all of my ideas during the discussion.	
Value	**Frequency**	**Percentage**
Strongly agree	12	63%
Agree	6	32%
Neither Agree nor Disagree	1	5%
Disagree	0	0%
Strongly disagree	0	0%
	19	100

Session 4	The meeting presentation was effective.	
Value	**Frequency**	**Percentage**
Strongly agree	8	44%
Agree	8	44%
Neither Agree nor Disagree	1	6%
Disagree	1	6%
Strongly disagree	0	0%
	18	100

Session 4	The speakers presented information in a clear manner.	
Value	**Frequency**	**Percentage**
Strongly agree	8	44%
Agree	9	50%
Neither Agree nor Disagree	0	0%
Disagree	1	6%
Strongly disagree	0	0%
	18	100

Session 4	The discussion was interesting and informative	
Value	**Frequency**	**Percentage**
Strongly agree	13	72%
Agree	4	22%
Neither Agree nor Disagree	0	0%
Disagree	1	6%
Strongly disagree	0	0%
	18	100

Session 4	I was able to express all of my ideas during the discussion.	
Value	**Frequency**	**Percentage**
Strongly agree	12	71%
Agree	5	29%
Neither Agree nor Disagree	0	0%
Disagree	0	0%
Strongly disagree	0	0%
	17	100

Global Transformation Roundtable

AGENDA

Wednesday

March 14th

8:00 – Breakfast

9:00 – Introductions

- *Opening remarks: Steven Bingler and Flozell Daniels*
- *Introductions: Pam Jenkins*

9:45 – LA SAFE Overview Presentation

- *Presenters: Liz Williams Russell, Mat Sanders, Donald Bogen, Ly Chan, Jonathan Foret, Angela Chalk, Pat Forbes, Monica Farris*

10:30 – Break

10:45 – Session 1 – Effects of Existing Inequities on the Response to Risk

- *Facilitator: Flozell Daniels*

12:30 – Lunch

1:30 – Session 2 – Risk Valuation and Communication of Risk

- *Facilitator: Rob Olshansky*

4:00 – Break

5:00 – Cocktails

Thursday

March 15th

8:00 – Breakfast

9:00 – Session 3 – Migration, Borders, Coordination, and Policy

- *Facilitator: Harriet Tregoning*

11:30 – Lunch

12:30 – Session 4 – Implementation, Funding, and Next Steps

- *Facilitator: Joyce Coffee*

2:00 – Closing Remarks and Adjourn

GLOBAL TRANSFORMATION ROUND TABLE

COMMUNITY PLANNING
FOR
CHANGING ENVIRONMENTS

Meeting Summary
Bellagio, Italy | October 14-16

LASAFE Louisiana's Strategic Adaptations for Future Environments
Foundation for Louisiana At work for resilient communities
concordia
THE ROCKEFELLER FOUNDATION
U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
The WALTON FAMILY FOUNDATION

Summary of Recommendations from the Bellagio Roundtable

In Bellagio Italy, October 14 -16 2018, Concordia, with support from The Rockefeller Foundation, Foundation for Louisiana, and UNO, convened twenty-two thought leaders from Louisiana and around the United States to exchange local and global expertise on adaptation and transformation in the face of increasing coastal risk, and to form a vision for the future of Louisiana that can inspire change there and be a model for other coastal communities around the world.

During the three-day convening, participants presented to one another to share aspects of their expertise and perspectives that bear on the challenges and opportunities presented by the need for climate adaptation, particularly in coastal areas. Participants also worked in small groups on three conceptual "super-projects" focused on economic transformation, climate migration, and governance structures. As the convening progressed, these three super-projects were organized into a single conceptual framework, with an economic diversification into the "Blue Economy" the overarching goal the other two super-projects support. On the last day, working groups were reorganized around "three pathways", or sets of actions to support the strategies. The three pathways were: 1. Leveraging Funding to Support the Blue Economy, 2. Planned Resettlement and the Community Benefits Agreement, and 3. Community Led Policy

The diagram above shows how the group developed these concepts and pathways and how they relate to each other. The Blue Economy is the overarching vision, supported by strategies and further supported by three specific pathways. The following pages summarize what the group discussed on each of these topics.

concordia

Super-Project 1 | Overarching Vision: The Blue Economy

Vision: Act for a more profitable, equitable, resilient tomorrow through the New Louisiana Economy

This vision for the new Louisiana economy centers around a "blue sector" focused on disaster preparedness, risk reduction, water management, and sustainable energy. This cluster will provide jobs in research, design, industrial production, and construction. Akin to silicon valley's cluster centered around computer technology, also incubated through government investment, the blue sector will harness restoration investments to provide jobs and kickstart a self-sustaining economy that provides valuable disaster mitigation and recovery products and services around the around the world. First, Louisiana should develop, the knowledge, skills, and businesses to capture existing funding for restoration and protection projects. By incubating those business and harnessing outside investment, Louisiana will also build the workforce that can export the same expertise to communities around the world, including fields of planning, design, engineering, fabrication, construction, and consultant services. In the coming decades and centuries, the world will require this expertise. Louisiana's unique position on the front lines of climate-induced flood risk and experience managing and recovering from disasters optimally positions the state to create a dynamic economic engine at the epicenter of the global climate adaptation economy.

Since hurricane Katrina in 2005, each of Louisiana's 64 parishes has been subject to a flood-caused major disaster. Historically, these disasters have been tropical, surge events. But, in 2016, Louisiana learned – the hard way – how vulnerable it is to intense riverine and flash floods. In the future, the world will become increasingly prone to flood risks of all kinds. Louisiana can harness the power of its citizens' collective resilience to export that expertise to other communities. This will diversify our economy and provide a catalyst for economic growth, creating more prosperity while reducing disaster risk.

The new focus on climate adaptation does not replace the necessity for climate mitigation. However, CPRA's models predict that coastal communities will be more flood prone in the future, even in the most optimistic scenario in which the entire $50B Coastal Master Plan is funded and global greenhouse gas emissions are reduced in the coming decades. The world is already too late in preventing greater flood risk in the future. The consequences will be measured in the unnecessary loss of life, damaged and destroyed communities, and diminished economic prosperity. The Blue Economy will proactively mitigate these consequences while improving resilience, sustainability, market advantages, job opportunities, and health and human security for all Louisiana citizens.

The cost of not being proactive will reproduce and exacerbate poverty and inequities across the coast. Historically, flood-prone and socially-vulnerable communities have disintegrated in the wake of repetitive flood events. A lack of adequate planning, protection, and investment has led to the disbandment of many communities and chronic budget problems in others.

To support the Blue Economy, Louisiana must not leave behind its coastal citizens who are paying the human cost of subsidence and sea level rise. As residents transition from high-risk areas with decreasing opportunity, they deserve a real choice to relocate, which will require concerted financial support to make the transition to communities with greater opportunity. This will empower those citizens to participate in the economy and reduce the long-term cost for the state and citizens of rebuilding after every disaster in high-risk areas. The state will support the development of flood-resilient communities of tomorrow - a prototype for other coastal communities around the world - and in the process, it will empower Louisianans to prosper.

For decades, Louisiana has heavily subsidized the oil and gas industry as the central pillar of its economic development strategy. Over $1B a year in property tax breaks are given to manufacturers every year in Louisiana, the most generous giveaway program in the country. Where in decades past these tax breaks were in exchange for the promise of jobs, now those same tax breaks support modernization and use of robotics that eliminate jobs. "Louisiana shielded [Exxon Mobile] from more than a half-billion dollars in tax payments even as its local payroll was trimmed by almost 1,900 jobs — a cut of more than 40 percent."[1] Now, with chronically low oil prices, the state is left with mounting debt, severe reductions to education funding, and a stagnant GDP. Residents know that Louisiana must diversify its economy to create more reliable economic prosperity. To that end, Louisiana should reevaluate the criteria for which businesses deserve state subsidies. Louisiana should make smarter investments, create targeted incentives, and reallocate subsidies to encourage diversification into the Blue Economy, to entrepreneurs, and to businesses that demonstrate the ability to create lasting jobs and value for Louisiana citizens. Education funding should be increased, particularly in the STEM fields, so that Louisianans can benefit from the high paying jobs in the Blue Economy; engineering, architecture, planners, business administration, advanced manufacturing, construction, and more. This new economic initiative will be held responsible by a series of checks and balances promoting transparency and accountability to taxpayers.

In parallel, government agencies should align their resources and investments with the prognosis of the Coastal Master Plan, avoiding risky development in high-risk areas. The state should examine closely how it manages land on a regional scale to support growth in high ground areas, to foster vibrant, equitable communities. The new Louisiana will design and build new housing and commercial development constructed to withstand the disasters we will face in the future. This transition will require government to become more responsive and coordinated across agencies and with the private, philanthropic, non-profit, and community-level sectors so that investments are leveraged and aligned with a shared understanding of the rapid changes ahead.

[1] Allen, R. (2018). *Louisiana's costliest incentive program allowed manufacturing companies to cut jobs while saving billions in taxes*. [online] The Advocate. Available at: https://www.theadvocate.com/baton_rouge/news/politics/article_41faa140-d861-11e7-9ec8-83e329aeda19.html [Accessed 21 Dec. 2018].

Super-Project 2 | Climate Migration & Resilience Hubs

Vision: The people of Louisiana will live in responsible, sustainable communities of opportunity in balance with the environment, and with agency and increased dignity through migration.

- Goal 1: Designate potential growth areas
    - Ensure environmental safety
    - Make movement a real choice
    - Create resilience hubs
- Goal 2: Short term: research and planning, designate first pilot community
- Goal 3: Medium term: create designs and affordable options, and a land bank to fund the future communities

To support the Blue Economy, a long-term view of the future coastline and flood risk must be integrated into a coordinated plan for economic growth and anticipated migration. Louisiana needs a two-pronged approach to facilitate a just and equitable transition from high-risk areas to future growth centers. The first prong is to create a transition fund that will provide support for those who wish to move from high-risk areas to lower-risk areas. The second is to invest in 'resilience hubs' that will be economic development zones in existing high-ground places anticipated to grow. By identifying locales that are high and safe, and have historic building stock in need of redevelopment, the state can invest in these communities, supporting, economic development opportunities, disaster preparedness resources, affordable housing, and other incentives to strengthen these town centers and to provide an attractor for coastal residents who choose to move from high-risk areas. Resilience hubs will be models for sustainable growth and economic opportunity that are developed in balance with the environment.

One principle for planning these growth areas pertains to the agency and dignity of residents choosing to relocate. Individual agency must be respected and preserved. The transition fund and resilience hub investment will be designed to provide an attractive option for residents to move to places of greater opportunity. Coastal residents moving to these centers should have a real choice, and that means understanding and addressing the financial constraints and hurdles preventing people from moving, such as getting out from under an upside-down mortgage. Growth in cities and towns designated as resilience hubs should also be developed compatibly with local ecology, examining flood risk, transportation, local food production, and other ecological constraints and impacts.

In the long term, seven total resilience hubs will be created, one in each MPO district, so that investment is distributed throughout the state to cities and towns desirous of investment and a growing tax-base. These communities may need new infrastructure investment to sustain population growth and densification. The economic goal for the resilience hubs and associated transition fund is to create 20,000 new Louisiana jobs in emerging sustainable economies with a 10% increase in average household income (from 2020).

These two programs should be created with community and data-driven perspectives. One pathway, described further in the Restorative Community Development pathway, will empower citizens to help design these programs and integrate the values and needs of families in addition to strictly economic considerations. A well-being survey would provide a qualitative layer to inform policies around compensation and resettlement to keep families whole and support them in having a real choice to leave if they choose to. To determine prospective resilience hub locations and characteristics, recommendations from the community will contribute to a comprehensive set of metrics for success. The City Resilience Framework Drivers is a resource which can be a basis for this evaluation and monitoring tool. Detailed mapping and economic analysis will help identify communities that are likely to decline and collapse, as well as those that are likely to successfully grow and thrive. An analysis of existing taxes, programs, and incentives will be necessary to craft the right bundle of opportunities and investments for long-term implementation. This initiative will require fundraising for the seed fund, a study of lessons learned from deindustrialized cities, and a deep dive into socio-political issues in receiving communities to minimize friction and conflict.

To support the long-term goal of a resilience hub in every MPO district, the first step is to announce and pilot the first resilience hub based on one of the already designed LA SAFE projects. During this time a macro-analysis of demographics, economics, and ecosystem services will inform the capacity of areas to grow, the amount of people at risk of displacement, etc. In the medium term, the first pilot will be complete and operational with a multi-sectoral governance structure (see Super-Project 3) that includes leveraged partnerships and an implementation agency with external accountability. During this time, the transition fund will be created and a concerted effort to create sustainable, efficient, and affordable home designs will need to be developed to create affordable housing options. The fund can also support the creation of a resilience land bank and the creation of a governance entity to manage the legal and financing elements, engage residents and stakeholders, build infrastructure, etc.

Super-Project 3 | Transformative Governance Model

Vision: A responsive governance structure that realizes vibrant, innovative, and equitable communities and economies able to meet Louisiana's climate challenges and opportunities.

The resilience hub concept is a microcosm of a broader shift in the relationship between Louisiana's people, economy, and environment. Changes will happen fast in cases of disasters and may also be gradual as land continues to subside, sea levels rise, and risk and flood insurance costs increase. As the environment becomes more unstable, ripple effects will spiral into the social and economic order of our communities. Our current governance structure is not designed to be adaptable or responsive to these changes. Further, the silos in government mean that while some agencies rightly present a future environment with more water, other agencies are investing in the very areas at highest risk. This reveals that these agencies do not communicate or align risk information or resources in an integrated manner. More critically, Louisiana's governance structures are dissociated from people on the ground and the experiences that should inform how adaptation is supported. Central to proposed changes to

governance is a commitment to engagement on the local level with residents who are on the front lines of radical changes.

The goals of this supporting strategy are to leverage this moment in time to defend Louisiana and its people against climate-induced change, align and leverage public and private resources to advance the vision, and redesign state governance models to introduce and advance democracy.

The goals for a transformative governance model are:

Goal 1: Reshaping Government

- Reshape the mission of state agencies to prepare for the adaptation and coastal transformation
- Build capacity within the state (workforce, capital, finance, innovation) to lead the change
- Enhance CPRA board to have broader representation
- Improve government effectiveness to better address challenges and opportunities of coastal/watershed change
- Create a body responsible for reviewing regulatory action, policy, practices and standards to enable unity of purpose and control access to transformation funds
- Insert aligned components in Coastal Master Plan to better coordinate agency action
- Reshape GOCA to work across all agencies
- Establish consistent data requirements and risk standards

Goal 2: Aligning Public and Private Resources

- LA SAFE 2.0: ongoing engagement, education, and planning across the coast
- Create new resources and markets for the adaptation economy
- Create incentives and a mechanism to collaborate across sectors
- Make institutions more proactive in addressing social and environmental needs
- Support a team of leaders capable of pushing implementation forward and coordinating public and private activity to support vision

Three Pathways

Following the conceptual development of the three super-projects, the working groups at Bellagio reorganized around three action pathways that would support the super-project concepts. These pathways unpacked core elements of the previous three proposals and drilled down in more detail.

Pathway 1 | Leveraging Funding to Support Living with Water

The vision of this pathway is to *leverage public and private investment and activities towards adaptation to create good jobs and entrepreneurism that attracts strategic investment to Louisiana.*

This pathway proposes financing and governance mechanisms to leverage existing and potential funding directed towards coastal resilience, to achieve a more meaningful and long-lasting economic impact for Louisianans. A CDFI-like instrument/institution can attract funding for climate and water resilience as well as social impact investments. These investments will be used as leverage to influence and align state funding to the vision for an equitable blue economy. This will be a key financing tool to steer Louisiana towards a thriving and self-sustaining economy with a broad long-term climate adaptation constituency and create a welcoming environment for investment and leadership. The fund will be leveraged to build skills in the Louisiana workforce and ensure that it stays within the Louisiana economy, fostering the transformation from desperation and risk towards entrepreneurism, security, and abundance.

The CDFI-like instrument/institution will design, implement, and manage a just and equitable climate transition fund that will attract and coordinate investment in adaptation strategies. This will help Louisiana to be more competitive, to have sustainable support and better community outcomes. The fund will leverage private investment to influence state budgeting and spending goals to have a greater impact. Louisiana is at its best when its entire budget is focused on investing in its people.

Another desired outcome is to close economic disparities among Louisiana's population, achieving full employment and entrepreneurism across race, gender, and geography to build community and power. To achieve this outcome, the group recommended the creation of an Office of Economic Development and Opportunity that will:

- Create and effectively partner to revolutionize workforce development and training,
- Direct LED, Workforce, and CPRA to analyze their programs and bring back recommendations that will create transformative resilience across all those offices.
- Map and spend equitably across the population of the state.
- Fully align state funding and procurement. Spur the creation of businesses that can capture those projects.

The programs and initiatives borne of these financing tools will be designed, carried out, and evaluated through a participatory, inclusive, and transparent process. The full breadth of community should contribute to program design and development.

Pathway 2 | Restorative Community Development

The second of the three pathways supports planned resettlement by outlining how transition services could be structured to promote equitable outcomes. The vision of this pathway is for *Louisiana to have a system and a process for just resettlement, called "restorative community development."* This proposal is to create a flexible valuation tool called a "Community Benefits Agreement" that would supplement traditional cost-benefit-analysis calculations, in order to help determine funding and compensation associated with relocation. This tool is rooted in community engagement. Communities would inform how to value aspects of their quality of life to be integrated into migration support services.

As high-risk homes lose value, homeowners can find themselves trapped with property they can't afford to sell. A relocation program with fair-market compensation in such a situation will not ensure that those residents could afford to live in safe housing elsewhere, as their property value may be far below the cost of safe housing in areas with economic opportunities and social fabric. The burden of maintaining the homes, surrounding infrastructure, education, and other social services may be more expensive to taxpayers and insurance companies in the long term than creating an option for residents to move with agency and dignity to a better situation. Further, the cost of not supporting transition includes the lost opportunities for increasingly isolated residents and communities in high-risk areas to fully contribute to the economy. These impacts will play out in ways that increase the need for state support and create a legacy of poverty and missed opportunity that can ripple down to future generations. To provide a real option to relocate, in some cases residents will need to be supported above fair-market value of their homes. A holistic resettlement approach means a greater investment up front for a long-term return that avoids the greater cost of inaction.

The state cannot define what the holistic resettlement approach should be by itself. Each community may have different skills, needs, and values. The state should develop a Community Benefits Agreement to fill the gap between a straightforward buyout that might be determined by a Benefits Cost Analysis and a truly holistic resettlement plan. The people most qualified to inform the dollar-value benefit of intangible values are the communities themselves, supported by technical experts. Community members will identify the aspects of life that they value that would make them whole in a future place. No one else can dictate that. The first prototype of this tool will be developed with some of the most vulnerable communities who will benefit from resettlement in the near-term. The state and partners can provide opportunities to build capacity, and provide engineers, economists, and other technical assistance to work with communities to define their own benefits and to determine what an equitable and just buyout program would look like or them.

Pathway 3 | Community-Led Policy

The third pathway builds on the topic of governance and begins to integrate action steps to achieve the vision of *a people-driven equitable system for managing coastal and water-based risk across the state.*

This pathway focuses on a greater degree of community participation in decision-making and a greater degree of coordination across parish boundaries, to plan around watersheds and risk rather than only within parish boundaries. The outcomes of this pathway include an educated and engaged public that has the capacity and support to engage with water-shed planning and decision-making, and a state government that works in partnership with communities to ensure that future development is responsible and safe. An educated and engaged public will become an interconnected network of community-based groups that support waster-shed management across parish boundaries and resist risk-prone development proposals in high risk areas. As Regional entities will be developed with power in the permitting process to address risk across watersheds. No new development incompatible with a high degree of flood risk should take place in high-risk areas. All parishes should develop, codify and enforce risk-based land use plans.

To support these outcomes, the group recommended the creation of a scorecard around resilience (not insurability), similar to the Community Rating System for all state projects, and tie the score to upcoming funding to create capacity and incentives for governments to manage land and reduce risk. This scorecard will help to tell the story of risk in each area with common language and will inform incentive alignment decisions. The state should utilize and expand the LA SAFE engagement model to create public education and expand capacity for community-led planning and decision-making.

A working group should be established to design an institutional structure that can make comprehensive watershed planning and implementation possible. The purview of the Coastal Master Plan should expand to a statewide approach requiring each state agency to have their own chapter in the Coastal Master Plan. The state should use the implementation process of the ten LA SAFE pilot projects to build the muscle of cooperation and coordination across state agencies, as part of the broader effort to align agency roles and increase coordination. The state should reform the procurement process to support equitable and restorative contracting.

Guiding Principles

One goal of the roundtable was to arrive at a set of guiding principles for this work going forward. The following six were extrapolated from the super-projects and the discussions during the three days:

1. Promote the highest principles of **honesty and integrity** in all planning for transformational change.
2. Establish and maintain **equity and agency** for all people in determining future pathways forward.
3. Develop and apply proven **scientific and evidence-based** data in the creation of all future development decisions and scenarios.
4. Make immediate **systemic and sustainable investments** that maximize the impact of our limited and precious public resources.
5. **Engage and educate whole communities** in the need for systemic and transformational solutions.
6. Develop a **transformational economy** with products, goods and services that leverage and enhance all our natural and human resources.

GLOBAL TRANSFORMATION ROUND TABLE

Creating a Sustainable & Inclusive Blue-Green Economy in Louisiana

Final Convening | January 9-10, 2020
Tulane River & Coastal Center | New Orleans, LA

Global Transformation Roundtable Context

To build upon and export the knowledge created through the LA SAFE planning process, a collaboration comprised of personnel from the University of New Orleans-Chart, Concordia, LLC, and the Foundation for Louisiana designed and implemented the Global Transformation Roundtable (GTR) project. With support from The Rockefeller Foundation, the GTR brought together individuals and organization from across the country and abroad between 2017 and 2019, with a final convening scheduled in New Orleans, Louisiana on January 9-10, 2020.

The overarching goals of all three convenings were:

"To develop strategies and tools to communicate, collaborate, and coordinate across sectors, disciplines and scales to address the complex, interrelated factors of flood risk for communities and individuals living in compromised locations."

These convenings used an iterative process to share knowledge from international, national and local perspectives to create a vision for the future of Louisiana that can inspire innovation and create a model for other coastal communities around the world.

The Blue-Green Economy: Background & Context

With support from The Rockefeller Foundation and through conversations and review of documents from prior gatherings, twenty-five thought leaders from Louisiana and around the United States convened to exchange local and global expertise with a singular focus on a "super project" - Leveraging Funding to Support the Blue/Green Economy.

Blue/Green Economy Context:
"There are billions of dollars coming to Louisiana for coastal restoration, water and watershed management, and climate adaptation including $1.2 billion in Federal disaster funds, $500 million annually from the Deepwater Horizon Oil Drilling Disaster (ending in 2032), ~$200 million annually from the Gulf of Mexico Energy Security Act of 2006 (GOMESA), and $250M for green infrastructure in Orleans Parish. There is an opportunity to ensure that these funds lead to the creation of more living-wage jobs and small business opportunities for all Louisiana residents, especially populations who have been disproportionately affected by climate change and other historical harms. This presents an opportunity to build economic power for our residents, decrease our dependence on extractive economies and shift to regenerative economies."

As way of background, the third convening was held at the Rockefeller Bellagio Center in Italy. This resulted in defining "Super Projects" that included: The Blue/Green Economy, Climate Mitigation & Resilience Hubs, and a Transformative Governance Model. Three pathways were identified to support implementation: Restorative Community Development, Leveraging Funding to Support the Blue/Green Economy, and Community Led Policies.

In the fall of 2019, the Foundation for Louisiana and the Greater New Orleans Foundation convened a set of local and regional allies working to deepen and coordinate their efforts to support coastal and climate adaptation. One finding that arose from that meeting was an understanding that, though many organizations are working to create pathways for local jobs and businesses opportunities, there is minimal coordination and communication to effectively support an emerging coastal restoration and water management economy.

The goals and outcomes of the final convening were as follows:

1. Build on the climate context to create a collective synthesis of pathways developed throughout the GTR process that would lead to a shared understanding, vision and a commitment to future work.

2. Surface and share knowledge and best practices for a sustainable and inclusive economy vis-à-vis a shared sense of commitment and understanding that we are better together.

3. Connect and enhance local and regional work to leverage resources coming into the state to launch a variety of platforms that honor local knowledge and best practices for sustainable and inclusive economies.

4. Recognize local and regional networks that will commit to garnering resources coming into the state.

5. Commit to develop communication practices to shape a collective narrative.

Day 1 | Grounding Together

On the first day of the convening, participants were led through a series of conversations by esteem panelists Steven Bingler, Principal at Concordia, Liz Williams Russell, Climate Justice Program Director at Foundation for Louisiana and Robbie Habans, Economist at Data Center Panel using the framework of "Our Shared Context" to explore the recent accomplishments and trends in Louisiana's continuing leadership on climate adaptation.

Participants then moved into small group to share aspects of their expertise and perspectives that bared witness to the challenges and opportunities presented by the need for inclusive, equitable and sustainable climate adaptation, particularly in coastal areas.

Global Transformation Roundtable Context

Bradford Davy, Director of Regional Engagement with the Fund for our Economic Future opened the second day of the convening by sharing best practices on adapting and aligning economic development strategies to meet community needs and drive a persistent focus on systemic racial inclusion.

As the Day 2 of the convening progressed, participants explored both as a collective and in small groups aspects of the Blue/Green economy that would afford the opportunity to create an inclusive and sustainable economy.

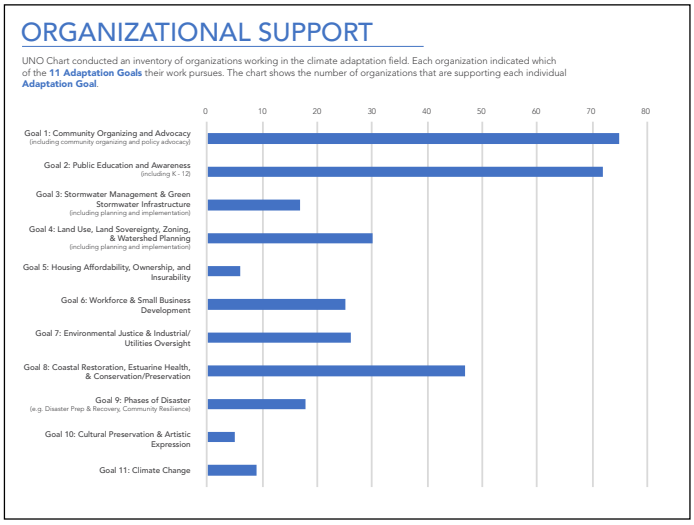
As a collective, Pam Jenkins, Research Professor at the University of New Orleans lead participants through a gallery walk of diagrams representing data collected by the Foundation for Louisiana and the Greater New Orleans Foundation in the fall of 2019. Local and regional allies working to deepen and coordinate their efforts to support coastal and climate adaptation contributed the data.

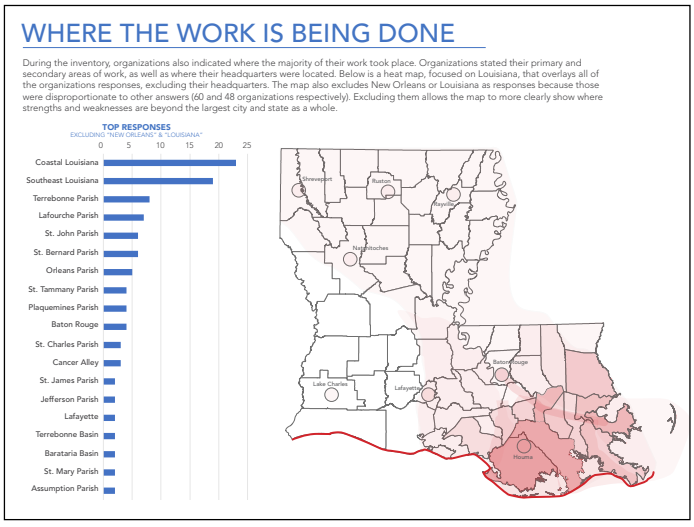
Example of a diagram description: One finding that arose was an understanding that, though many organizations are working to create pathways for local jobs and businesses opportunities, there is minimal coordination and communication to effectively support an emerging coastal restoration and water management economy.

In small groups, participants explored aspect of the Blue-Green economy using the following five scenarios to uncover what is possible and how to continue build out the pipeline.

1. Place-based development
2. Small business development
3. Workforce development
4. State and local policies
5. Education

Divided amongst five scenarios, the small group provided a high-level assessment of existing organizational infrastructure for new economies in the region and state.





UNO CHART Meeting Evaluation

Below are the open-ended results from UNO CHART's meeting evaluations.

What was your biggest takeaway from the convening?

- More work is required to activate cross-sector, statewide partnerships to advance the blue/green economy. We need to work together…but we will need leadership to make that happen (2)
- The scope of the challenge is great but there is a lot of will and dedication. (2)
- There is a lot of work ahead of the group to organize. (2)
- These relationships are important. (2)
- I think there were a couple notable absences (of people who are usually in these kinds of meetings) and this one was better and more honest because of it.
- The strength of this community of practice.
- Blue/green will be the new locally economic growth
- Personal and professional will is present; pathway(s) unclear.
- For me, I left confused re. just what a B-G economy would look like. I believe my confusion around this topic is connected to what I found to be a missed opportunity to talk meaningfully about the significance of narrative in connecting with both colleagues and the broader population. I appreciate the fact that narrative mattered. I simply thought we missed a chance to capitalize on what we agreed was important: The Story. Collaborative narratives are always messy to construct. But if the convening began with a short precis on narrative and how it would/could be used throughout our activities, then, at the end, revisit narrative from the vantage point of how it could inform our big story—the B-G economy—and also the smaller, but significant stories embedded in each of the collective tasks we completed.
- Our anger at and rightful urgency about climate change, inequality, and the potential to waste the money at stake is preventing us from seeing that transformation will still require working with people we don't agree with. Unless we intend to destroy the existing systems, we will need to build a narrative that both groups can see themselves in that still moves us forward quickly.

What would recommend to improve the convening?

- Do more work to understand individual interests/agendas (3)
- More concrete layouts of what is needed to make a change for LA (2)
- The second half of Friday lost some direction. I think it's a difficult challenge to meet and endemic to most convenings.
- More time was needed for this final session.
- People were allowed to go on too long and lost the room.
- More debate - structured debate to help us build consensus and clarify our position
- I hope you can continue to keep participants engaged.
- Stronger, more concrete agreement about coalition building
- Dedicated resources to attach to a strategy
- Coffee in the afternoon.
- Nothing

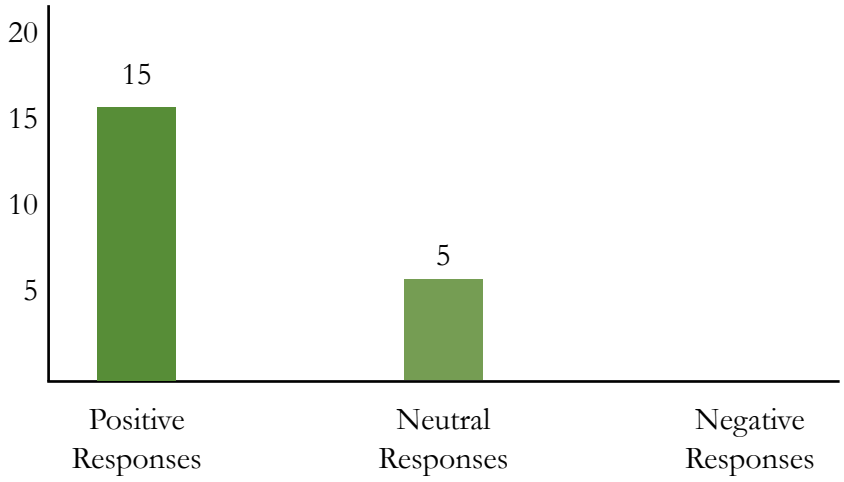
Is there anything else you'd like to tell us?

- Thank you for including me! (2)
- Based on the meetings today/yesterday will there be a commitment to develop next steps/strategy scenarios?
- Thanks - I was skeptical but I think this was useful - especially if we actually try to do a political/electoral organizing project.
- We should link this group to Gulf South Green New Deal.
- I agree that the solution exists beyond the status quo.
- More and different tables.
- Really appreciated the meeting design and the thinking from the group that went into designing the meeting.
- Really enjoyed meeting everyone and learning.
- Thanks for all of your work!
- As someone from afar, I find the idea of this kind of collaboration across fields of expertise and experience promising.
- No

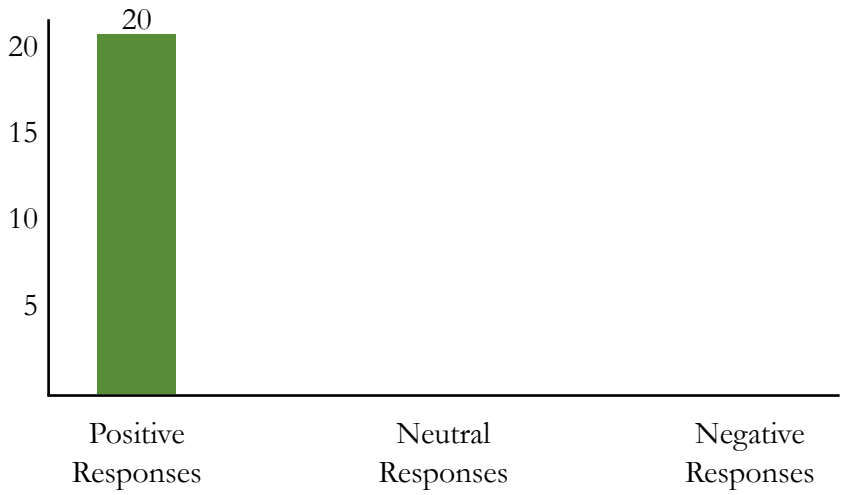
Below are the evaluative results from UNO CHART's meeting evaluations.

Purpose of Meeting

The purpose of the meeting was clearly stated.

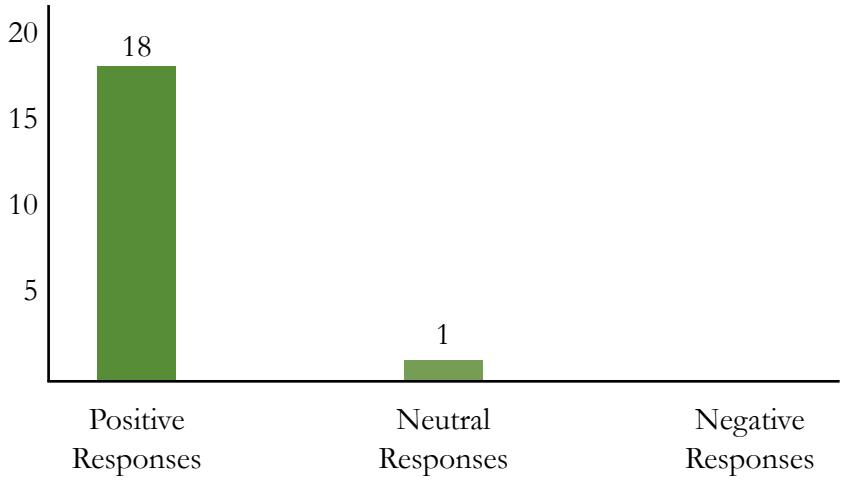


The purpose of the meeting is important to me.

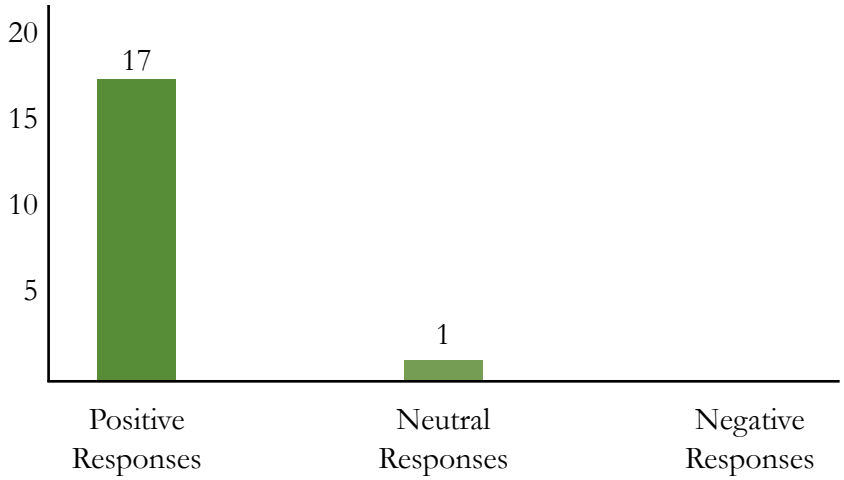


Short presentations

The meeting presentations were effective.

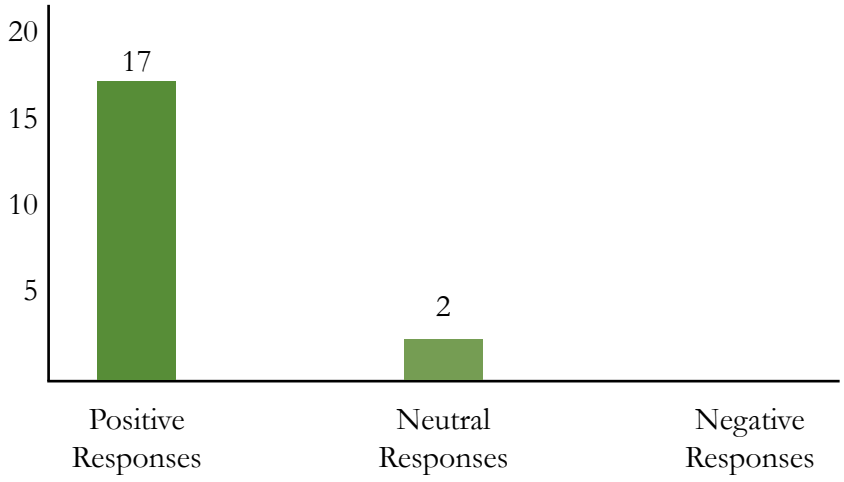


The speakers presented information in a clear manner.

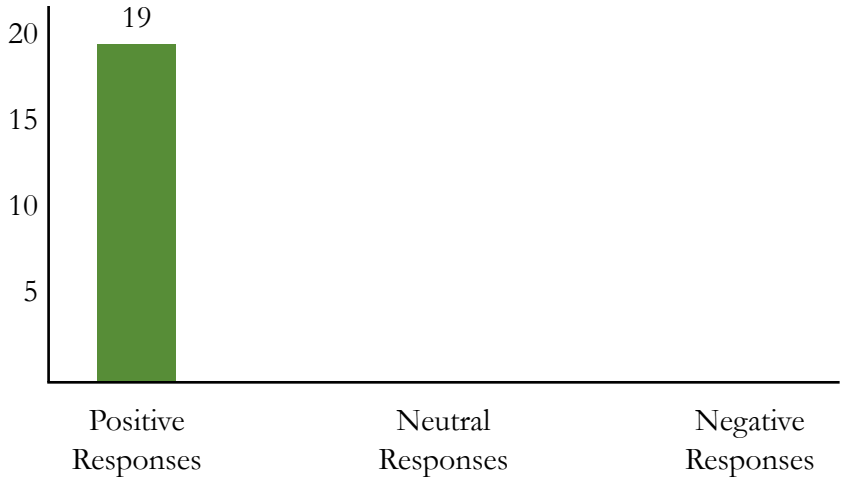


Friday's small group work

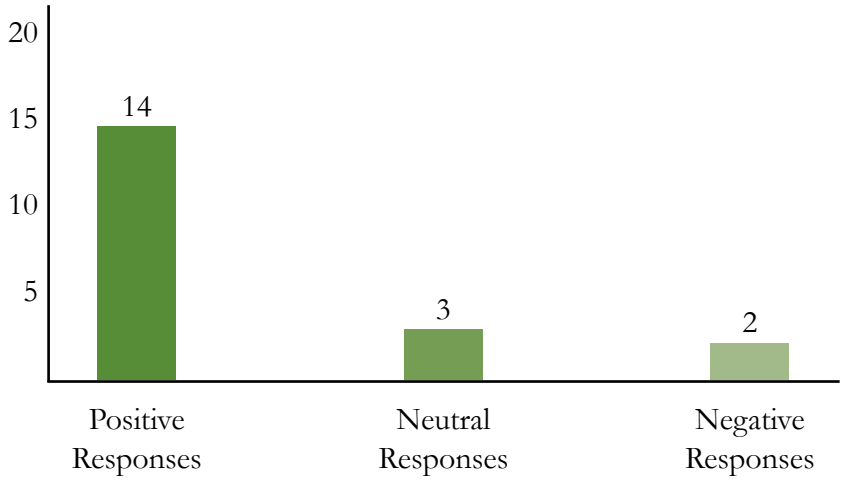
The directions were clear.



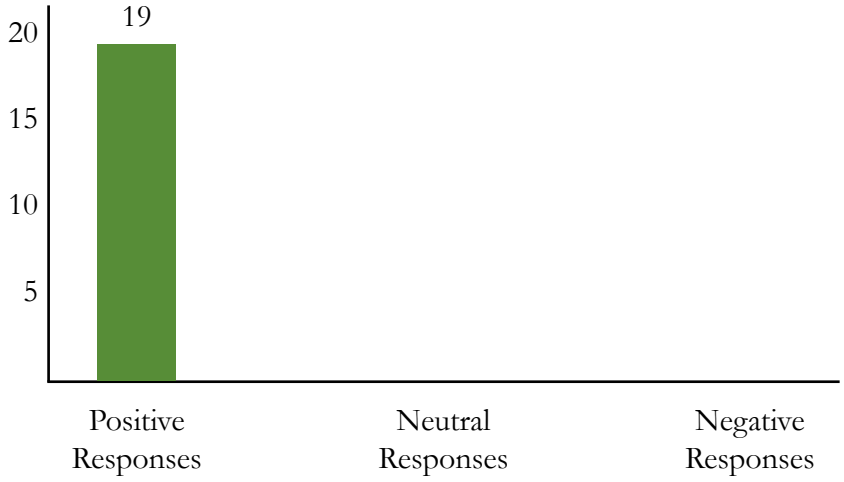
The morning small group exercise was effective.



The afternoon small activity was effective.

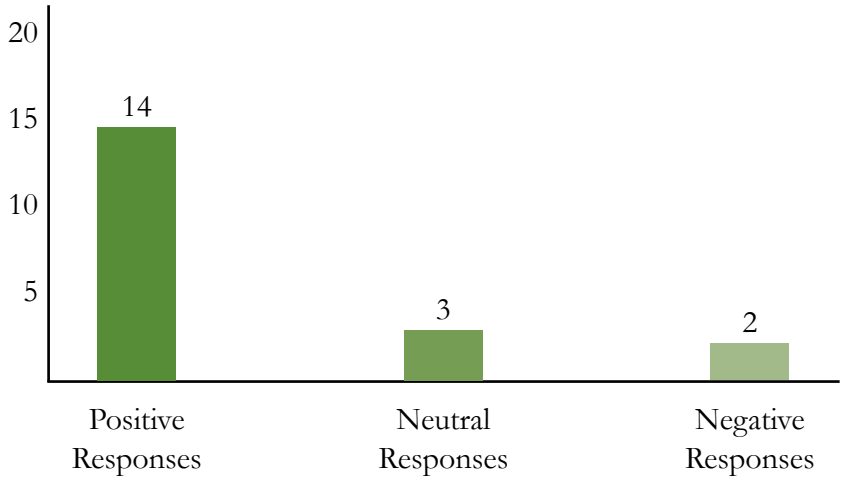


I was able to express all of my ideas during the discussions.

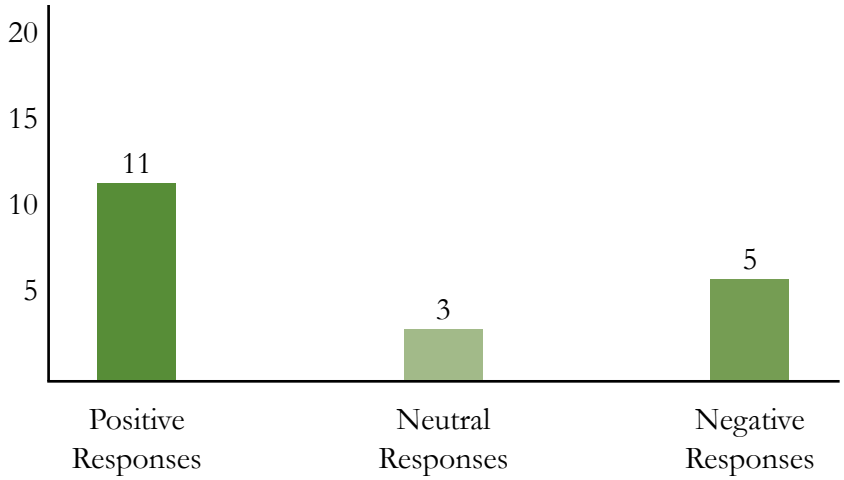


The narrative exercise

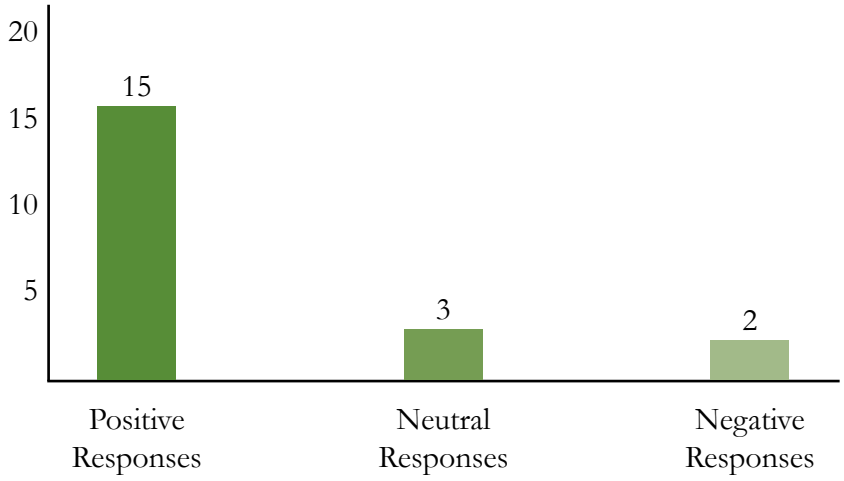
The directions were clear.



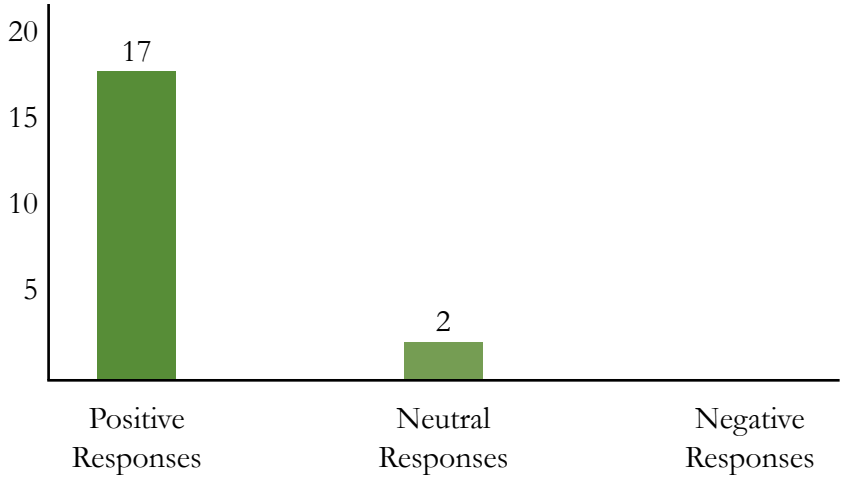
The exercise was effective.



The discussion was interesting and informative

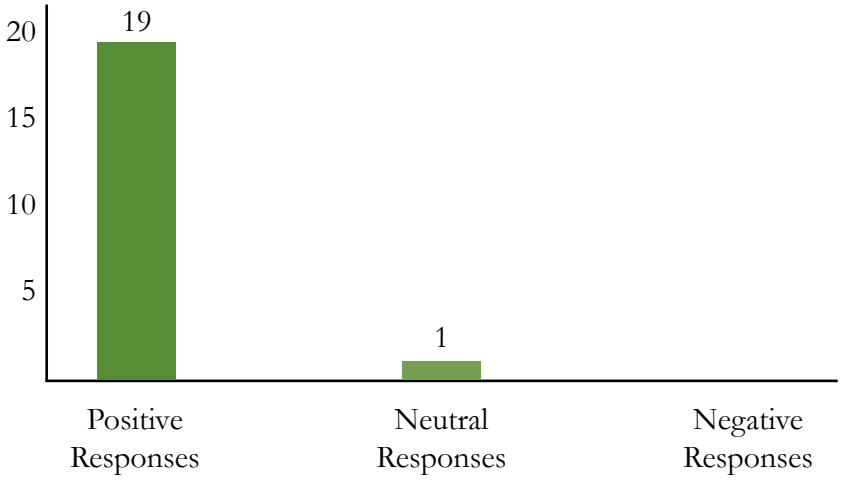


I was able to express all of my ideas during the discussion.

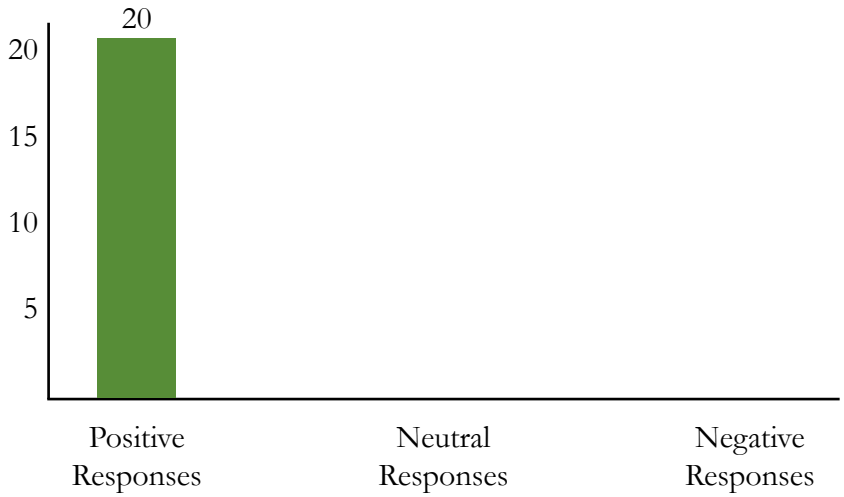


Review of the two days

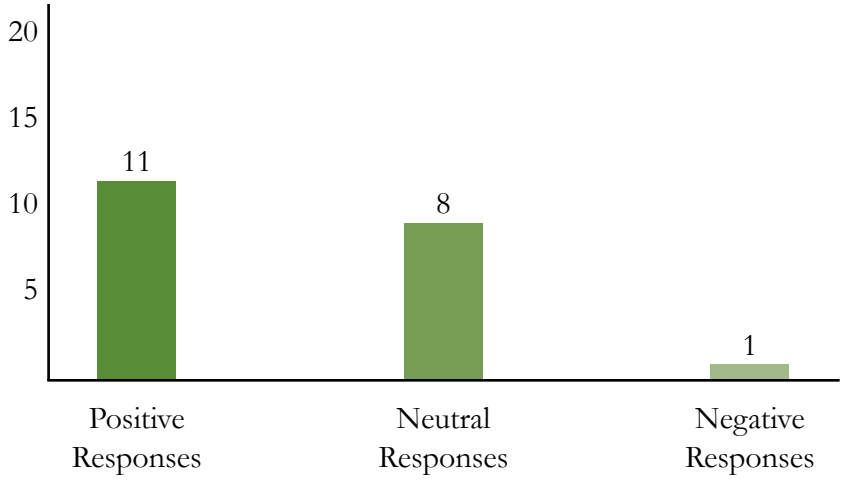
I met new people that I will contact in the future.



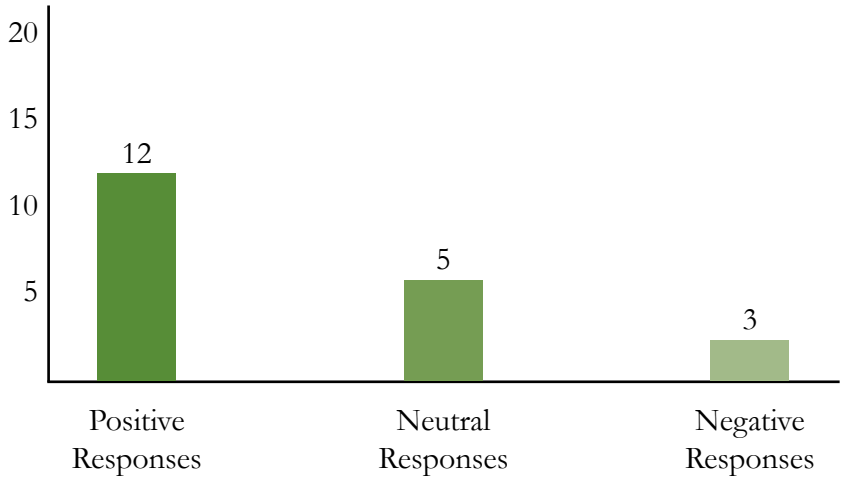
I learned new information that I will use in my work.



I found new ways of working with people.

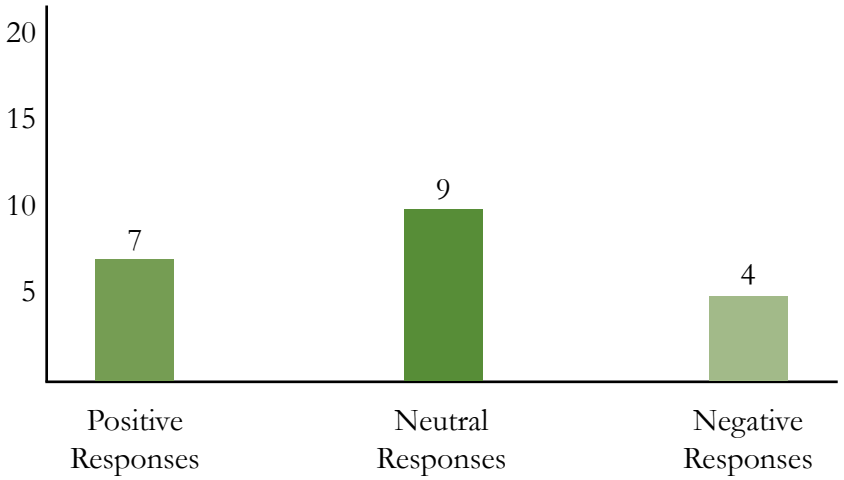


I began to see a way where the development of a blue-green economy might change my work.

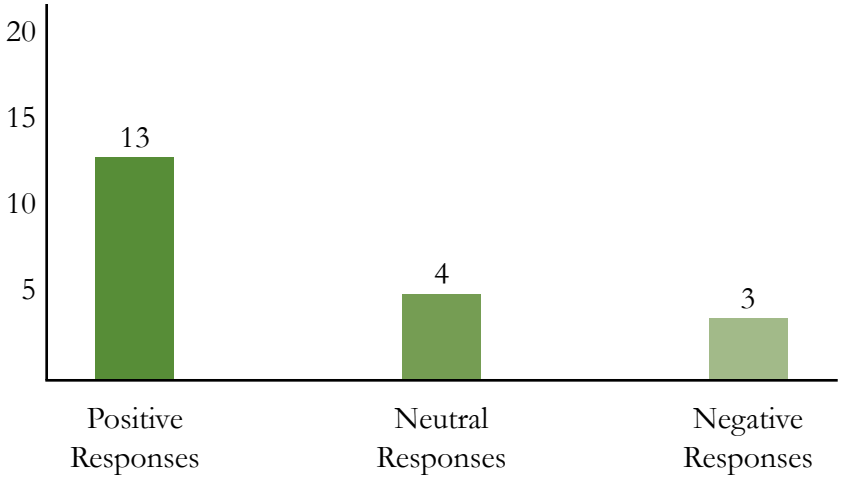


Potential outcomes

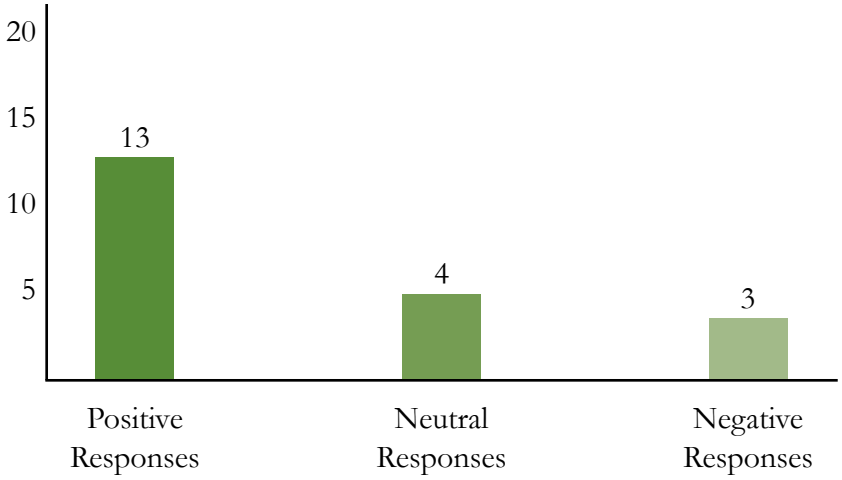
I came away with a shared understanding of a vision that might lead to committed future work.



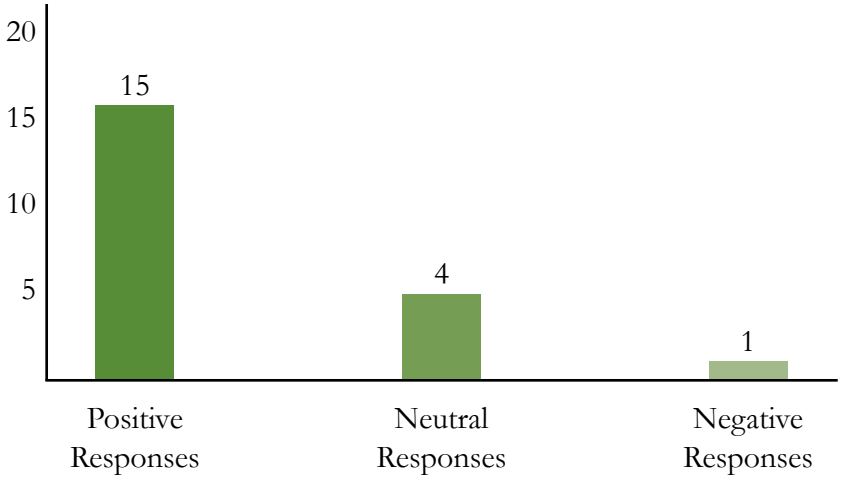
I came away with a shared sense of commitment to collective strength.



I saw a way to work on a variety of methods that recognize local knowledge and best practices for a sustainable and inclusive economy.

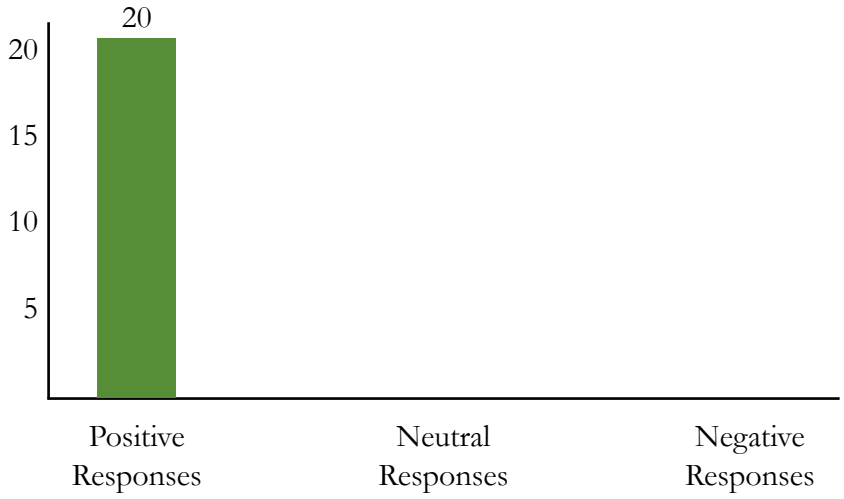


I saw a way to be part of local and regional networks that will commit to finding methods to leverage resources coming into the state.



Meeting facilitation

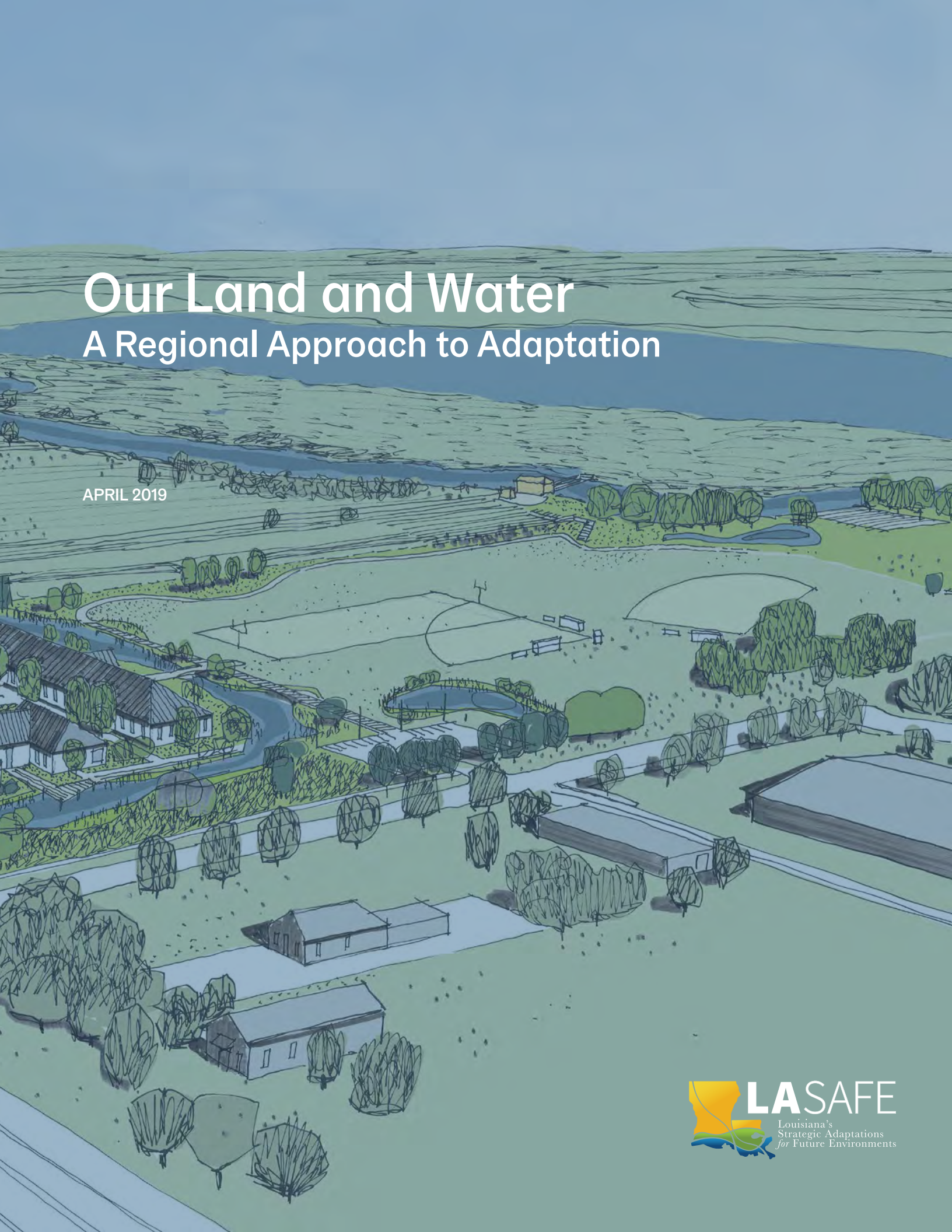
The overall meeting facilitation was effective.



Our Land and Water

A Regional Approach to Adaptation

APRIL 2019



LASAFE
Louisiana's
Strategic Adaptations
for Future Environments

Executive Summary

Since Hurricane Katrina's landfall in August 2005, each of Louisiana's 64 parishes has been included in a federal major disaster declaration as a result of a named tropical event. Moreover, the Great Floods of 2016—two rainfall events six months apart affecting wide swaths of the state—caused severe flash and riverine floods and led to major disaster declarations in 56 parishes. These events have left an indelible mark on Louisiana's history.

Louisiana is the most flood-prone state in the U.S., and its flood risks extend to all three types of flooding—coastal (surge and tidal), fluvial (riverine), and pluvial (intense rain causing surface flooding).

Statistics paint a grim picture. According to the Coastal Protection and Restoration Authority (CPRA), more than 1,900 square miles have been lost in Louisiana since the 1930s, and an additional 4,120 square miles could be lost over the next 50 years. The state's coastal condition directly correlates with its disaster risk—specifically vulnerability from severe tropical events and their accompanying catastrophic surge floods.

Louisiana is in the midst of an existential crisis. Its response to this crisis can either lead to a prosperous renaissance or to a continued and sustained cycle of disaster and recovery.

The Coastal Master Plan—a $50 billion, 50-year coastal restoration and flood risk reduction effort—is the cornerstone of Louisiana's response. However, even with the plan's full implementation, it is likely the state will experience a net loss of land—and be faced with the increased coastal flood risk that comes from less land—over the next 50 years. **In some communities, conditions are likely to get worse before they get better. For some, relocation will be the only viable option.**

While structural interventions like levees, pumps, and floodgates are vital to mitigate flood risk, complete protection is impossible. Adaptation is necessary, and as a comprehensive approach adaptation includes structural risk reduction systems and ecological restoration efforts. **Adaptation must also include a large-scale rethinking of where and how development takes place in the future—and also where and how it does not.**

Louisiana's Strategic Adaptations for Future Environments (LA SAFE) provides a holistic approach to flood risk of all types as well as the myriad of human, economic, and environmental impacts experienced following past floods and those anticipated in the future. To develop aspirational—yet realistic—visions of tomorrow's communities, LA SAFE led a grassroots effort across six-parishes to gather information and ideas while harnessing the experience and ingenuity of local citizens. It includes an extensive planning process of more than 70 outreach and engagement events, more than $41 million in project investments designed by residents and stakeholders, and seven strategy documents highlighting takeaways and recommended actions.

While takeaways and recommendations vary in each parish, a few prevailing themes emerged throughout.

Louisiana is already experiencing a migratory shift as a result of its flood risk. The state's lowest-lying communities are currently losing population while higher-ground areas—those naturally better protected from coastal floods—are gaining population. Additionally, as these disaster-vulnerable communities—and many others like them—have declined in population, most have experienced parallel declines in median household incomes and increases in poverty rates. In short, those who move are often those with the financial means and social networks to do so, while in many cases, lower-income populations—those most vulnerable to severe impacts when disasters occur—remain behind and in locations more prone to significant flood risks. This effect carries consequences including contracting tax bases and fewer available resources for social services and infrastructure investments.

Land is a shrinking commodity in Louisiana. As Louisiana considers long-term mitigation of flood impacts, land use strategies should be a vital component. The state cannot afford continuing development practices exacerbating its exposure to flood risk. Likewise, with each passing flood, it cannot continue to rebuild in place and in replication of what previously existed. Strategic land use must not only consider those low-lying and higher-risk communities, but it also must consider locations naturally less likely to flood—those communities poised to become "receiver communities" as populations continue to move away from risk.

Floods have impacts beyond property damages. Long-term adaptation must include plans for new, resilient, and affordable housing stock. As coastal lands disappear, supply chains and transportation patterns will be disrupted, resulting in necessary adjustments being made to the network. Private property and water use rights will become more contentious issues. Coastal parishes relying on immovable natural resources and infrastructure for their economic benefits may increasingly become commuter parishes, impacting social networks, local culture, and demand for goods and services. Louisiana's changing environment impacts every aspect and function of its society, which the state's adaptation plans must address.

Education, economic diversification, and smart-growth principles are part of a solution. Most Louisiana citizens are aware they live in an especially flood-prone state. However, awareness should not be confused with education. Louisiana's educational system includes curriculum on its rich history and culture. There is no consistent curriculum outlining Louisiana's coastal condition or broader flood risk profile. More alarmingly, there is no effort educating the public on the relative benefits—and limitations—of risk reduction and restoration efforts or of ways to more effectively manage water and its many benefits.

Through education, Louisiana's citizens can develop a better understanding of what happens in areas susceptible to severe, repetitive disaster events and how lower-income, often underserved, populations are disproportionately impacted by these events. Its citizens can learn how diverse, robust economies provide natural disaster resilience and how smart-growth principles offer opportunities to maximize land uses in the state's upland, less flood-prone places. Coalitions can be built and motivated to a scale appropriate to the existential crisis at hand.

A future with increased risk will force relocation for some, but offer new opportunities for others. Isle de Jean Charles, an island community in southeastern Terrebonne Parish—outside of the Morganza to the Gulf structural risk reduction system, is one such community. While much of the current island has eroded away—forcing its resettlement, the Isle de Jean Charles community now has the opportunity to be reborn in a new upland location. Many additional communities, while not candidates for resettlement, will be forced to contemplate existence with a reduced population and contracted economy, and perhaps a smaller land footprint. Meanwhile, receiver communities will experience growth both rapid and gradual as populations continue to flee more flood-prone areas for those naturally higher—and drier.

Both scenarios present obvious challenges. However, both scenarios also offer the promise of opportunity. Through this set of seven adaptation strategies, LA SAFE is Louisiana's first effort in what will be a generations-long process to take what has been a historical hardship—catastrophic flood risk—and use it as a catalyst to develop a vision for a new Louisiana in which disaster risk reduction, economic growth, equity, education, and innovation are not just ideals, but hallmarks defining Louisiana's place in the global effort to combat the consequences of climate change.

Recommendations at a Glance

LA SAFE addresses community resilience holistically—**integrating risk planning with planning for stormwater management, housing, transportation, economic development, education, recreation, and culture**. LA SAFE recommends the following goals and strategies, including specific action items needed to implement the strategies over a 50-year time frame.

The below recommendations are the result of an extensive community visioning and input effort. LA SAFE's outreach and engagement campaign encompassed 71 individual public meetings across five rounds of events in each of the six LA SAFE parishes. These efforts are further detailed in **Chapter 2: LA SAFE Process**.

Manage Flooding and Subsidence

Institutionalize considerations of future flood risk in daily operations and programs within state agencies

A: Develop a means for statewide oversight and coordination of regional adaptation initiatives. Connect with neighboring states and complementary programs.
B: Require state agencies to assess flood risks to their physical assets based on best available data, including Coastal Master Plan projections, and to prioritize allocation of resources with this in mind. Continue to monitor as projections evolve and the Coastal Master Plan is updated.
C: Require state agencies to include current and future land loss and population movement in their program evaluations and updates.

Align public funding and project prioritization to promote green infrastructure and stormwater management

A: Develop watershed-based stormwater policies across jurisdictional boundaries.
B: Require that all publicly funded capital projects in the state capture and store at least 1.25 inches of rainfall in the first hour of a rain event.
C: Develop or adopt existing safety guidelines for graywater use.
D: Incorporate stormwater management functions in recreational areas.

Incentivize the incorporation of stormwater management features and green infrastructure in private development

A: Encourage local governments to develop green infrastructure programs.
B: Provide incentives for investment in stormwater best practices on private property.
C: Promote the use of shared detention areas adjacent to property owners.
D: Provide outreach, education, and technical assistance for best management practices in stormwater management and green infrastructure as well as updates on the current status of local stormwater management systems.

Plan for Safe and Affordable Development

Encourage elevation of homes based on current and future flood risk

A: Require all new development or substantial rehabilitations of existing properties be built to two feet above the base flood elevation for a 100-year flood or to the 500-year floodplain.
B: Develop equitable financial incentives and education to assist with home elevations and ensure elevation support for all residents.
C: Include weatherization programs and wind fortification, extreme heat, and seismic upgrades with home elevations to address multiple risk factors.
D: Develop an education and marketing program to encourage pier-and-beam construction.

Plan for future development based on risk typologies with mixed-use residential growth in low-risk areas

A: Create small area plans to accommodate future development in low-risk areas.
B: Develop zoning incentives to attract mixed-use development in low-risk areas.
C: Create an optional buyout program for full-time residents in high-risk areas.
D: Ensure demolition at the end of life of commercial developments in high-risk areas, upon long-term vacancy.

Identify ways to address insurance affordability

A: Analyze the feasibility for Louisiana to leave the NFIP and develop its own flood insurance program.
B: Provide support and incentives to communities in the floodplain for participation in FEMA's Community Rating System (CRS).

Improve Mobility throughout the Region

Promote well-connected, multimodal transportation options within parishes and across the region—including water transportation—to better connect existing communities to emerging and growing sectors, industries, and job opportunities

A: Require the use of Base Flood Elevation (BFE) and CPRA 50-year flood risk projections when planning future transportation routes.
B: Model the impacts of new transportation projects on hydrological processes.
C: Improve connectivity between transportation routes and natural destinations.
D: Prevent future loss of purchasing power to help pay for the backlog of maintenance.
E: Prioritize multimodal transportation options and improve access within and among communities.
F: Update and improve Louisiana's Complete Streets Policy.
G: Implement any recommendations that DOTD has not yet adopted.

Protect and elevate key supply chain and evacuation routes

A: Identify and improve key transportation and evacuation routes vulnerable to current or future flooding and other weather events.
B: Incorporate existing transportation assets into evacuation plans.

Diversify Educational and Employment Opportunities to Strengthen the Regional Economy

Increase coastal education for students of all ages

A: Introduce a statewide curriculum about the state's coastal landscapes for pre-K – 12 students. Once implemented, expand the curriculum to include instruction about Louisiana's regional land and water ecosystems.
B: Expand weekend and summer camp opportunities for coastal education.

Expand skills training in coastal careers

A: Develop a coastal specialization pathway for high school students who seek either Jump Start or TOPS diplomas.
B: Match education with skill needs of local employers.
C: Support apprentice-based model for coastal careers.
D: Build Louisiana's expertise in coastal and stormwater management.
E: Offer retraining programs in emerging coastal careers such as adaptation, mitigation and recovery, wetlands protection, and aquaculture.

Grow and diversify the economy

A: Promote Louisiana expertise in coastal restoration and adaptation.
B: Support and foster emerging economies.

Support Louisiana seafood and fishers

A: Understand how environmental changes will affect Louisiana fisheries.
B: Assist the fishing industry to adapt and distribute locally.
C: Provide technical assistance and loans to help commercial fishers diversify their businesses during commercial off-seasons.
D: Increase fisheries certification.
E: Develop and promote the Louisiana seafood label.
F: Create a marketing and branding training program for fishers.
G: Provide research and assistance for adopting sustainable fisheries.

Support Healthy Communities, Regional Culture, and Recreational Access to Nature

Increase access to nature for recreational use and ecotourism

A: Support businesses that provide recreational services.
B: Promote ecotourism opportunities at the state level.
C: Expand access to outdoor recreational opportunities for Louisiana youth.

Preserve and support Louisiana's culture and heritage

A: Host cultural events and programs in conveniently located, accessible places.
B: Expand the state's Percent for Art program.
C: Capture the culture and history of high flood risk areas.
D: Promote local tourism.
E: Invest in and use existing and new marketing tools to promote Louisiana.

Encourage development that is informed by an understanding of the relationship between public health and the built environment

A: Use municipal ordinances and incentives to incorporate public health objectives and strategies into new developments.
B: Provide a state best practices guideline for minimizing negative health impacts of development.
C: Address mental health issues associated with living in areas of risk uncertainty.

Community Transformation as a Multi-Sectoral Partnership: Getting to Implementation

A White Paper for the Third Global Transformation Roundtable

Laurie A. Johnson[1] and Jeffrey Hebert[2]

I. The Challenges

"The world breaks everyone and afterward many are strong at the broken places."
– Ernest Hemmingway, A Farewell to Arms, 1929

For generations, the people of coastal Louisiana have adapted to their semi-aqueous ever-changing environment. From the first native peoples who inhabited the land and the earliest European colonizers, managing environmental challenges has been key to survival. As Campanella notes in *Bienville's Dilemma*: "The first Europeans did not 'commence' history and document a benchmark landscape… they merely encountered a landscape continually under transformation, vastly by physical forces over millennia, and considerably by indigenous human forces over centuries" (Campanella, 2008, p. 101). Repeated flooding from rivers and bayous and rebuilding after devastating hurricanes are historic challenges coastal Louisianans have had to face living in this environment. However, today's challenges and the challenges projected for the future are far more daunting than those experienced in previous generations.

The Mississippi River deltaic system has been walled and channelized which, in turn, is starving Louisiana's coast of much needed sediment. Coupled with ongoing subsidence and some of the highest rates of relative sea level rise in the world, Louisiana's coastal region is losing an estimated football field of land every 100 minutes, or approximately 16.6 square miles of land loss a year across the entire state. This chronic environmental stressor has been and is likely to continue to be exacerbated by the episodic coastal erosion caused by major hurricanes like Katrina and Rita in 2005 and Gustav and Ike in 2008, and man-made environmental disasters like the 2010 oil spill. Beyond the environmental degradation, Louisiana's coastal region also faces a declining petroleum-based economy, a highly vulnerable seafood industry, social isolation and poverty, and the loss of unique Native American, Cajun, and south Asian cultures and ways of life.

The Plans

Even before Hurricanes Katrina and Rita put an international spotlight on the vulnerabilities of the Louisiana coast, efforts to educate the public and change policy were well underway. Most significant was the passage of Act 6 of the Louisiana Legislature in 1989 which established the Wetlands Conservation and Restoration Authority within the Office of the Governor—the very foundation for comprehensive planning and action (Louisiana Sea Grant, 1989, pp. 6–8). Under the act, the Governor through the Executive Assistant has vast authority to focus and coordinate all state agencies on matters related to wetland conservation and restoration. In the

[1] Laurie A. Johnson, PhD FAICP is an urban planning consultant and researcher based in the San Francisco Bay Area.
[2] Jeffrey Hebert is the Vice President for Adaptation and Resilience at the Water Institute and a lecturer in Sustainable Real Estate Development at the Tulane University School of Architecture.

aftermath of Hurricanes Katrina and Rita, the Louisiana Legislature restructured the Wetlands Conservation and Restoration Authority into the Coastal Protection and Restoration Authority (CPRA) and added the responsibility of considering hurricane protection as well (CPRA, 2013).

Since the 2005 hurricanes, the State of Louisiana and coastal communities have invested heavily in planning to develop comprehensive strategies, both short- and long-term, to protect, mitigate against and prevent further degradation. Beginning in 2006, the Louisiana Recovery Authority (LRA) in collaboration with the Center for Planning Excellence (CPEX) undertook a coast-wide visioning and planning process for communities recovering from Hurricanes Katrina and Rita. The resulting *Louisiana Speaks Regional Plan for Recovery and Growth* engaged over 20,000 residents to develop a vision of rebuilding that was 'safer, stronger, and smarter than before' (LRA, 2007). That planning process was coordinated with efforts to create the state's first official coastal master plan which the State Legislature unanimously approved in 2007 with two subsequent updates in 2012 and 2017. The *2017* Coastal Master Plan prioritizes $50 billion in coastal restoration and risk reduction activities over the next 50 years (CPRA, 2017).

In concert with the state efforts, the City of New Orleans undertook significant planning efforts beginning in 2006 that resulted in the *Unified New Orleans Plan* which promoted the integration of multi-level flood protection measures into rebuilding plans, including housing/business relocation from the most vulnerable areas, elevating structures, hardening infrastructure, and accommodating additional people in less vulnerable areas (City of New Orleans, 2007). That work led to the major overhaul of the city's Master Plan (City of New Orleans, 2010) and adoption of the city's first comprehensive zoning ordinance in 2010; the *Greater New Orleans Urban Water Plan* (Waggoner & Ball Architects, 2013) to manage interior drainage and set forth a 'living with water' approach; the *Resilient New Orleans* strategy (City of New Orleans, 2015) that describes 'curb to coast' adaptation actions; and the corresponding $141 million grant awarded to the city in 2016 by the U.S. Department of Housing and Urban Development (HUD) through its National Disaster Resilience Competition (NDRC) to adapt the Gentilly neighborhood into a national model for resilient safe and equitable communities of opportunity (City of New Orleans, Mayor's Office of Resilience and Sustainability, 2018).

In 2016, the state's Office of Community Development-Disaster Recovery Unit (OCD-DRU) was also awarded $92 million from the HUD NDRC to focus on coastal resilience. Of this, $52 million will help relocate residents of Isle de Jean Charles, an island off the coast of Terrebonne Parish that is home to Native American communities and which has lost 98% of its land mass since 1955 (State of Louisiana, 2018a). The other $40 million has gone toward the Louisiana Strategic Adaptations for Future Environments (LA SAFE) program which has used an innovative, co-design approach to community adaptation planning with community members of six coastal parishes in southeast Louisiana who are facing the challenges firsthand of coastal degradation, land loss and increasing flood risk (LA SAFE, 2017).

LA SAFE's nine-month long engagement and outreach process involved public, private, philanthropic, non-governmental organizations (NGOs), and community partners at 71 community meetings, gathering together over 2,800 residents, community organizations, parish

officials and other stakeholders across the coast. The process culminated in the development of adaptation strategies for each of the six parishes and the evaluation by residents of proposed programs and projects for the state to invest in using the $40 million granted awarded to OCD by HUD (LA SAFE, 2018).

While some funding to implement these plans has been secured, tens of billions of potential program and project needs have been identified. Even if full funding is available, there are real questions as to whether the most optimum of resilience investment efforts can keep pace with the increased flood risk and losses in the coastal environment and communities (Sneath, 2018). Community transitions have already begun in the more vulnerable parts of coastal parishes in southeast Louisiana. Demographic analyses have shown that these areas have already lost population, school enrollments have declined, and in some cases, schools have closed (The Data Center, 2017). Preservation of the region's economies and cultures now depends on a transformative mix of adaptation, protection, and restoration working together to address community growth and contraction according to risk (LA SAFE, 2017).

The Partners

As agreed to at the second Global Transformation Roundtable in March 2018, achieving coastal transformation in Louisiana will require a multitude of partners acting together in a unified manner to communicate risk, build trust and implement equitable policies in the context of an economically and racially stratified society (UNO-CHART, 2018) .

The public sector has a responsibility to invest in the critical infrastructure and ensure the protection of people and place where feasible. Coastal Louisiana is guided by a dedicated state agency, the Coastal Protection and Restoration Authority and the legislatively approved Coastal Master Plan that must be updated every 5-6 years. In addition, the Governor's Office of Coastal Activities and the Executive Assistant to the Governor for Coastal Affairs each have certain oversight authority. The state OCD-DRU oversees vast post-disaster funding from the federal government and develops action plans for funds distribution. However, individually and together none of these agencies have enough resources to address this challenge. Planning at the CPRA has been less focused on the human dimension and instead focused almost exclusively on the restoration of the natural environment and engineered protection systems. LASAFE is an example of how to do both.

The private sector has an important role in the development and implementation of solutions, the availability of financing vehicles, and the practice of corporate citizenry that promotes sustainable development and preserves and protects the livelihoods of communities. For optimal private sector participation in adaptation and transformation activities, the public sector working collaboratively with residents must clearly define the problem, prioritize actions, and participate in opportunities for leverage. These partnerships can yield better products and tools for investment in infrastructure, housing, and other interventions that physically enable transformation. The private sector can also provide tools for individuals and families to prepare for future shocks and on-going stressors.

Civil society organizations and the philanthropic community are also key partners in the efficacy of any community transformation activity. Civil society is a well-positioned sector to advocate for vulnerable communities and can provide the programming, support, counseling, training, and education necessary to keep communities engaged, informed, and active in the decision-making that affects them. The philanthropic community is vital in providing financial and technical resources to planning and implementation activities and support to civil society organizations.

Most importantly, the community needs to be continually and actively engaged by the public sector in transformation activities. This includes planning, project and program development and prioritization, financing new projects and programs, and the design and construction of new projects and implementation of programs. As agreed to at the second Global Transformation Roundtable, activities should not exacerbate or replicate historical racial and geographic inequities (UNO-CHART, 2018).

Access to financial and other resources necessary to take action has been a major determinant of the ability of individuals and families to transition or transform in the aftermath of disasters like Hurricane Katrina (Esnard & Sapat, 2014; Fussell, 2015; Sastry & Gregory, 2014; Weber & Peek, 2012). Similarly, access to resources has been an influential factor in resident responses to the changing environment in southeast Louisiana. Demographic analysis has shown that middle class residents facing escalating flood insurance and other costs have already been using their assets and social networks to voluntarily relocate, leaving behind a more stratified populous of poorer and elderly residents lacking such resources and the wealthier who can afford to self-insure and absorb potential losses (The Data Center, 2017). With so many coastal communities generationally tied to place, the disruption of adaptation and transformation may have wide ranging impacts, from social cohesion to mental health.

II. The Scholarship

> *"The world we have created today as a result of our thinking thus far has problems which cannot be solved by thinking the way we thought when we created them.*
> *– attributed to Albert Einstein*

In moving forward, the gaps and barriers to implementing community-scale adaptation and the strengths and weaknesses of sustaining multi-sectoral partnerships must be understood and strategies developed to overcome them.

The social-ecological resilience framework (Holling, 1973, 1996; Walker & Salt, 2006) is one of the most commonly cited theories on climate change related adaptation and transformation actions. This framework views social and ecological systems as intrinsically linked, with changes in these systems occurring in phases of adaptive cycles that are variable, complex, non-linear and dynamic. **Adaptation** generally involves a change of something in response to something else, but it challenges neither the drivers of change, nor the systems, structures and interests

that keep them intact. **Transitions** refer to the shifts from one phase of the adaptive cycle to another and the process is often referred to as incremental adaptation. However, some transitioning may result in a complete change of state and the creation of a fundamentally new system or structure, representing a transformation, or transformative adaptation. **Transformability** is the capacity to create a fundamentally new system or structure when ecological, economic, and or social conditions make the existing system or structure untenable (Walker & Salt, 2006).

"Transformational adaptation has been proposed as a necessity to deal with severe climate risk across scales and large vulnerabilities in certain systems" (Ziervogel, Cowen, & Ziniades, 2016, p. 6, citing Kates et al., 2012). However, Ziervogel et al (2012) also emphasize that caution is needed when applying an ecologically rooted concept to social systems that require a focus on human agency. "In the social world, resilience has as much to do with shaping the challenges we face as [merely] responding to them" (Ziervogel et al., 2016, p. 5, citing Dalvoudi (2012, 306)).

The application of resilience thinking to development practices has been offered as a possible solution to the paradox of sustainability and stability "conceived from a systems-in-equilibrium perspective, and implemented in a top-down, predict-and-control manner" and which contradicts the reality of disturbance and change that we inhabit (Ziervogel et al., 2016, p. 4). **Transformative resilience** envisions 'thrivability' over 'survivability' as a desired goal and is "creative, adaptive, imbued with agency, and implemented through prototyping and social learning" (Ziervogel et al., 2016, p. 4).

Both the latest update of the Coastal Master Plan and the LA SAFE planning process acknowledge the need for the large-scale environmental and community-scale transformative actions to build the social and ecological resilience capacities necessary to effectively address the environmental changes underway in coastal Louisiana. However, while resilience as an ability to withstand and thrive in the face of shocks and stresses may be a desired outcome of the adaptation process, it is not always the end-state. Achieving a state of transformative resilience requires people and communities to be at the center of the process of preparing for change, navigating the transition, and building the resilience of the new trajectory of development (Olsson, Folke, & Hahn, 2004). It involves radical, systemic shifts in values and beliefs, patterns of social behavior, and multi-level governance and management regimes (Olsson, Galaz, & Boonstra, 2014; Pelling, O'Brien, & Matyas, 2015).

Participants in the first Global Transformation Roundtable in July 2017 agreed that these shifts are not and cannot be the job of one sector or one actor acting alone, and transformation must involve a holistic, community-led approach to enhancing individual and community well-being using the response to environmental change as a catalyst for broader innovation (Concordia, 2017). This agrees with views on the practice of **building transformative capacit**y in individuals and organizations as requiring a conceptualization of human society and evolution as deeply participatory and co-creative, and "where each human being is viewed as a creative agent of change in their own right" (Ziervogel et al., 2016, p. 7). This philosophy has been applied in LA

SAFE and must now be more broadly applied in other planning efforts and in the implementation of specific programs and projects as part of statewide coastal adaptation and transformation.

What fundamentally distinguishes planning from the **implementation** of transformation is decision-making and action with the reality of change – making change in complex systems and organizations, and changes in the hearts and minds of people. Transformative decision-making and action involves great uncertainty, and physical transformation actions can be much more obvious than psychological transformations in personal identity and behavioral change (Park et al., 2012). To cultivate human transformative capacity, Ziervogel et al (2012) recommend three key areas of focus: an awareness of and a reconnection to life supporting systems; a well-developed sense of agency; and social cohesion. Each are mutually reinforcing but "if any of these are missing, not well balanced, or presenting in a pathological fashion, then the capacity to effect deliberate transformation may be stunted" (Ziervogel et al., 2016, p. 7).

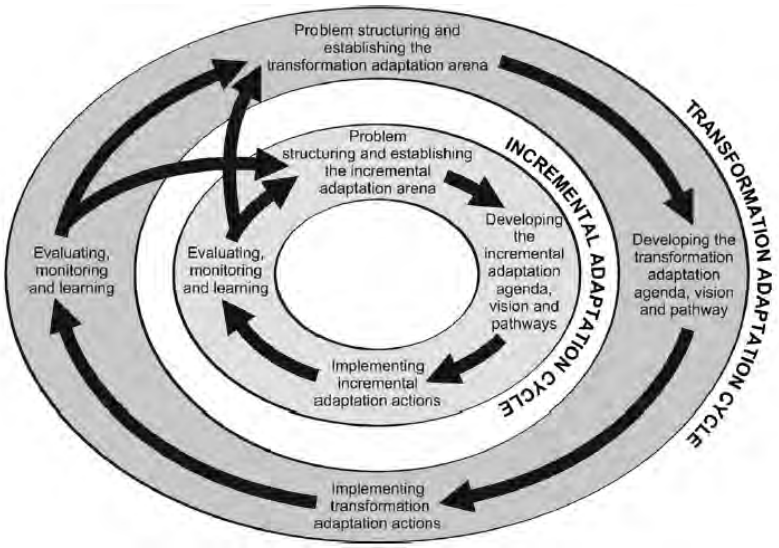
Early scholars of policy and program implementation advised to centralize decision-making and adopt tools, such as rules, protocols, or benchmarks, in an attempt to reduce and manage uncertainty; more modern approaches to implementation practice emphasize managing complexity, broadening deliberation and collaboration, aligning coordination activities, addressing behavioral biases and understanding culture, and engaging the unpredictable through learning processes and policy and program adaptation (Pressman & Wildavsky, 1984; Sandfort & Moulton, 2015). As Pressman and Wildavsky (1984, xv) framed it: "Implementation and evaluation are the opposite sides of the same coin, implementation providing the experience that evaluation interrogates and evaluation providing the intelligence to make sense out of what is happening."

Large-scale implementation is daunting, however, and it is challenging to know how and where to start. Park et al (2012) offer an "Adaptation Action Cycle" framework for accelerating and guiding social innovation processes like coastal transformation. They emphasize focusing on the adaptive transitions, both incremental and transformative, in implementation, describing **transition management** as a cyclical "search and learning process" that features inclusive participatory engagement, experimentation and innovation, and monitoring and evaluation as a mechanism for social learning; see Figure 1a.

The concentric cycles of incremental and transformative adaptation action each consist of four activity clusters: 1) establishing the transition area, that enables a shared understanding of the problem along with a set of guiding principles for the envisioned transition; 2) developing coalitions and identifying images and pathways that represent possible visions and options for the transition, and in turn allowing for the development of a transition agenda; 3) mobilizing diverse actors in implementing transition projects and experiments that build on the transition images, pathways and agenda; and 4) monitoring and evaluating the transition process itself to consider possible improvements and stimulate a process of social learning among the involved actors (Park et al., 2012). The formation of partnerships, coalitions and networks are vitally important throughout all four activity clusters in the Adaptation Action Cycle. Figure 1b

identifies some of the key questions that Park et al (2012) recommend for use in assessing the decision-making processes of various actors involved in adaptation action.

a)



b)

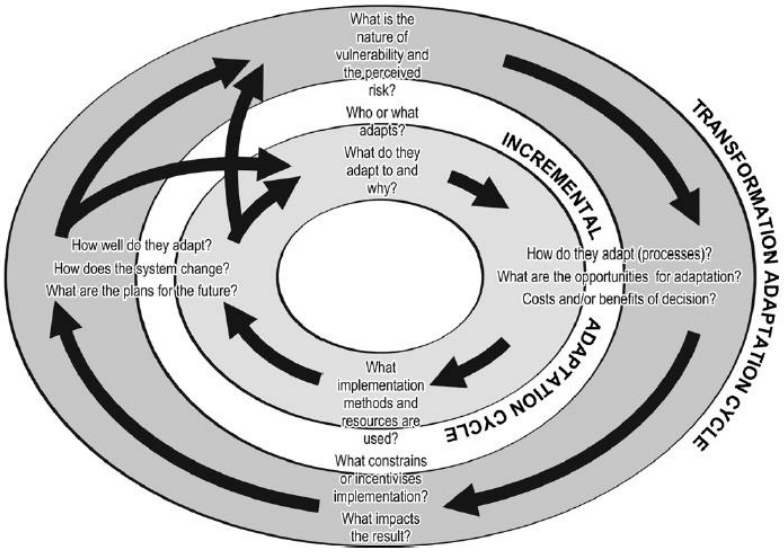


Figure 1. A) Schematic representation of the Adaptation Action Cycle, depicting two concentric but linked action learning cycles operating at different scales. B) The Adaptation Action Cycle framework showing the key questions for guiding a systematic assessment of adaptation decision-making processes and to be used in managing adaptation at different scales. Source: Park et al (2012, 118 and 120).

Transition design also focuses on transformational transitions of society to more resilient futures through architectural and urban design (Irwin, Kossoff, Tonkinwise, & Scupelli, 2015). The transition design method emphasizes designing for change and transition—and how change and transition manifests and can be catalyzed and directed—within complex systems. It takes on

complex challenges by approaching each immediate problem as a step towards a longer-term vision or goal. Those longer-term or future visions or goals must inform the immediate actions and must be integrated across systems, rooted in local wisdom and knowledge (both historical and contemporary), and participatory in the larger global network of ideas. The Transition Design Framework described by Irwin et al (2015) involves four mutually reinforcing and co-evolving areas of knowledge, action and self-reflection: 1) vision for transition; 2) theories of change, 3) mindset and posture, and 4) new ways of designing. Each is further described in Figure 2.

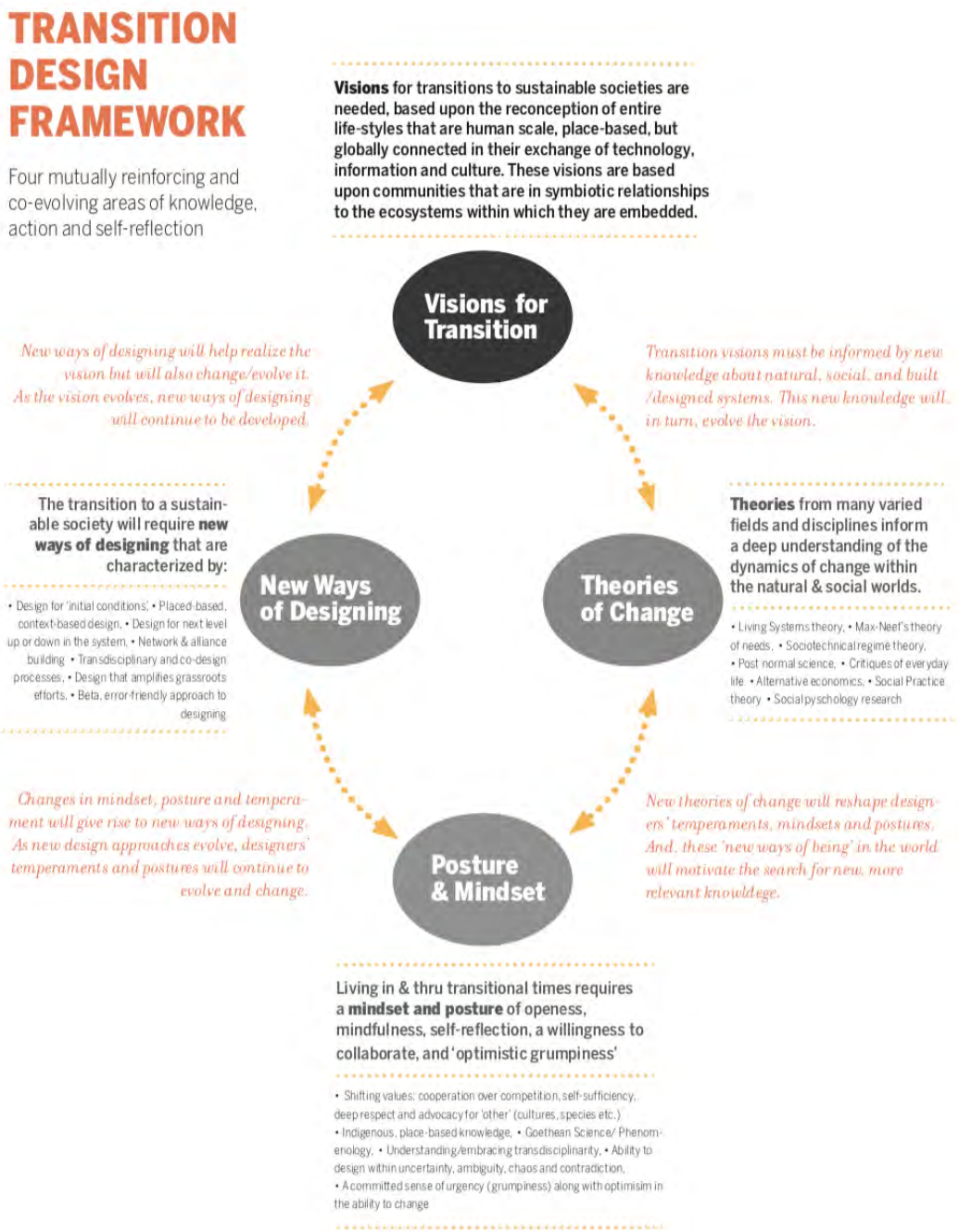


Figure 2. Descriptions of the four elements and their interactions in the Transition Design Framework. Source: Irwin et al. (2015, 7).

Developing and maintaining a holistic view is critical to implementing large-scale transformation (Irwin et al., 2015; Pelling et al., 2015). The Coastal Master Plan, LA SAFE and other planning efforts have made great strides in framing the geographic expanse and the social-ecological systems and activity spheres involved in coastal adaptation and community transformation. These frameworks will need to be expanded and adapted, or new frameworks identified, as planning integration and implementation progresses.

At the first Global Transformation Roundtable, participants evaluated and agreed upon the six planning and design domains, or the Nexus framework, developed by Concordia (2013) as a systemic framework to co-design community transformation (Concordia, 2017). The six domains are: physical, cultural, social, economic, organizational, and educational; see Figure 3. Physical programs, activities and initiatives relate to gray and green built and natural resources. Cultural programs, activities, initiatives and artifacts relate to individual and collective values. Social programs, activities and initiatives can impact physical and psychological wellbeing. Economic programs, activities and initiatives support a healthy balance between financial, human and environmental capital. Organizational programs, activities and initiatives, includes families, small groups, specialty clubs, city and county school boards and councils, and a myriad of political parties and other private and civic entities, as well as informal institutions and the engagement mechanisms through which community issues are deliberated and implemented. Educational programs, activities and initiatives, includes pre-natal to early childhood, primary, secondary, community college, college, university, and adult education, workforce training programs and services, and informal education.

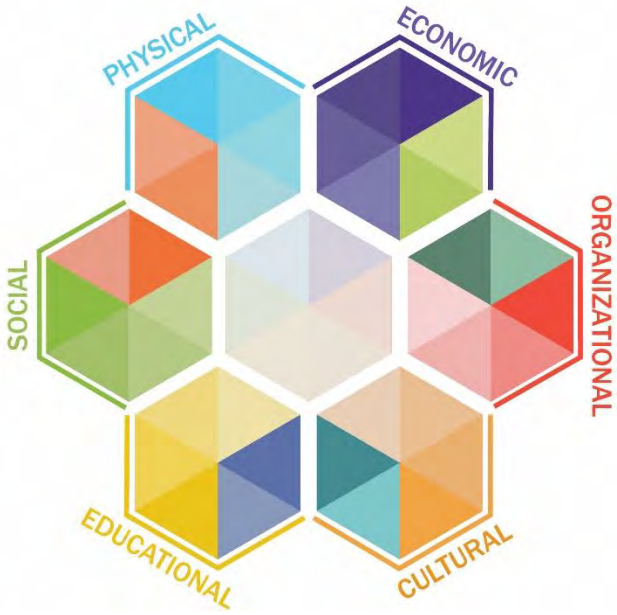


Figure 3. The six planning domains of the Nexus framework for planning and design. Source: Concordia (2013).

At a more granular level, Pelling et al (2014) describe adaptation activities occurring within seven interrelated activity spheres that co-exist and co-evolve together and for which the interactions, flows and blockages can be observed. They are: individuals, technology, livelihoods, discourse, behavior, environment, and institutions; see Figure 4. Individuals describes fundamental changes to the acts or processes by which individuals acquire knowledge, including perception, intuition, reasoning and emotional intelligence. Technology includes material interventions as well as innovation in organization structure and function. Institutions serve to regulate and facilitate social behavior, as well as reproduce power asymmetries and police its reproduction. Livelihoods represent the assets and entitlements of individuals and households as well as production and labor processes. Environment captures ecological, physical and chemical systems and their integration through coevolution with social and technological systems. Behavior recognizes that adaptive capacity is reproduced through everyday activity, and discourse expands beyond individual cognition and specific practices to larger set of interventions that are considered legitimate and possible.

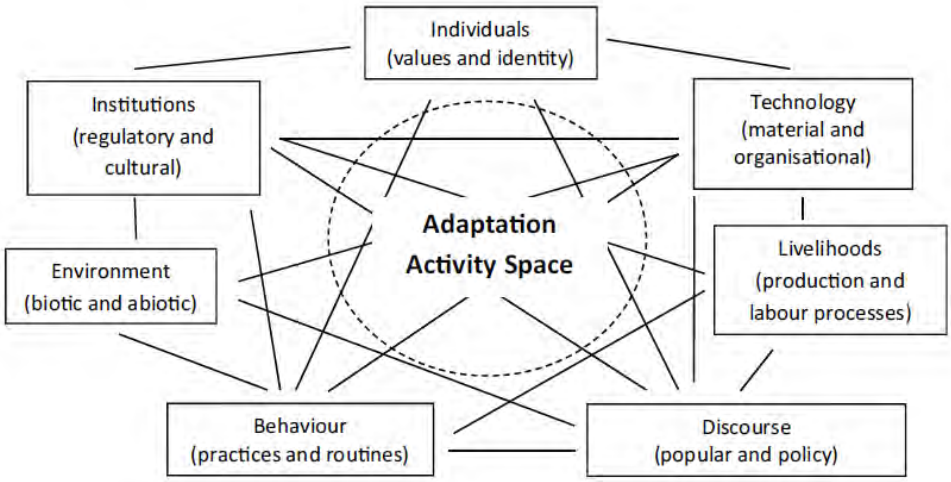


Figure 4. Schematic representation of the seven spheres in the adaptation activity space. Source: Pelling, O'Brien and Matyas (2014, 119)

Time is also an issue in large-scale implementation and it is fraught with power dynamics and equity issues. Climate adaptation and community transformation are long-term ventures requiring immediate and incremental, as well as sustained and transformative decisions and action. Looking across the varying time scales, a number of inter-generational power and equity questions arise such as: 'who shapes what adaptation and transformation means now versus over time?' 'who ultimately shapes and defines the region?' 'who governs, who maintains, and who pays and when?' 'will the benefits of resilience be equitably shared?' and 'what voices are or could be missing?'

In the article "The politics of resilient cities: whose resilience and whose city?" Vale (2014, 199) warns that "if researchers and practitioners cannot be explicit about the equity dimension of

the endpoint, the [resilience-seeking] processes will lack a moral compass." "Resilience can only remain useful as a concept and as progressive practice if it is explicitly associated with the need to improve the life prospects of disadvantaged groups… "This means that those who wish to advance the agenda of a 'resilient city' must do more than judge the design products on the ground; they also must assess the power dynamic" (Vale, 2014, p. 191 and 200).

Looking across five global case studies of community resilience to extreme events, Gibson et al (2016, 2) found that "most often the burden of transformation is carried at the local level through the behavior of individuals, populations, and civil society." Their concluding question for future work was "How can the burden of undertaking transformation be shared across scales?" (Gibson et al., 2016, p. 2). They also warn that the inherently disruptive nature of transformative work may be strongly resisted by political and policy organizations and institutions that are intentionally built to be durable and resistant to change, and even go so far as to propose that established institutions must fail to resist change and exhibit behaviors beyond established norms for transformation to occur. The other indicators of transformation that they identified are: intense interaction between actors, the intervention of external actors, system level change extending beyond efficiency to governance and goals, and behavior beyond established coping strategies (i.e. social learning) (Gibson et al., 2016).

Because coastal adaptation and community transformation involves action at the local-level in response to regional, state, national, and even global drivers of change, participants at the first and second Global Transformation Roundtables have agreed that collaboration between scales and across a ranges of sectors is essential (Concordia, 2017; UNO-CHART, 2018). Additionally, as demonstrated in the LA SAFE project, they suggested that a regional approach may be most effective in addressing some of the governance challenges with collaboration between governmental entities at the same scale of governance being equally as important as collaboration across scales of governance (Concordia, 2017).

The linking of government agencies across scales and levels of government, frequently through informal networks, is often referred to as **network governance**. Innes and Booher (2018, 188) explore the emergent practices of **collaborative governance** for the network of "governmental and nongovernmental players working together to manage a resource or address other wicked problems." Table 1 summarizes the contrasting ideas about traditional and collaborative governance based upon their own research and the work of other scholars in understanding institutional designs and practices. A key difference is their structure. Traditional governance typically has a top-down, hierarchical structure whereas collaborative governance has interdependent, network clusters.

Table 1. Differences between traditional and collaborative governance. Source: Innes and Booher (2018, 193)

Governance Dimension	Traditional Governance	Collaborative Governance
Structure	Top down hierarchy	Interdependent network clusters
Source of direction	Central control	Distributed control
Boundary condition	Closed	Open
Organizational context	Single authority	Divided authority
Leadership approach	Directive	Generative
Role of manager	Organization controller	Mediator, process manager
Managerial tasks	Planning and guiding organizational processes	Guiding interactions, providing opportunity
Managerial activities	Planning, designing, and leading	Selecting agents and resources, influencing conditions
Goals	Clear with defined problems	Various and changing
Criterion of success	Attainment of goals of formal policy	Realization of collective action and conditions for future collaboration
Nature of planning	Linear	Nonlinear
Public participation objective	Legal conformity, inform and educate, gain support of public for agency policies	Create conditions for social learning and problem-solving capacity
Democratic legitimacy	Representative democracy	Deliberative democracy
Source of system behavior	Determined by component participant roles	Determined by interactions of participants

Multi-sector partnerships (MSPs) are described by Carmona et al (2017, 750) as "voluntary but enforceable commitments between public authorities, private enterprises, and civil society organizations across sectors. They can be temporary or long-lasting. They need to be founded on common principles and goals in order to reduce risks and gain mutual benefit; in some cases, they might need to be enforced by law (Carmona et al., 2017).

While collaborative MSPs have already existed in the Louisiana's efforts to plan and implement coastal resilience, Surminski and Leck (2017) propose an important distinction between what they call 'first generation' and "second generation' MSPs, acknowledging the progression from agenda setting and knowledge sharing to the implementation and delivery of solutions. Of the partnerships addressing urban climate risks that they studied, Surminski and Leck (2017, 966) found that "the dynamic nature of urban adaptation with a shifting focus from initial agenda setting toward the implementation of actions presents challenges for existing MSPs, particularly… long-established ones."

The delivery of solutions is commonly more associated with **public-private partnerships** (PPPs) "between a public authority and a private sector partner, that deliver critical infrastructure, housing affordability and urban regeneration with clear distinctions between the roles and functions of different members" (Surminski & Leck, 2017, p. 975). Second generation, implementation-focused partnerships are likely to require a different set of members or rules of engagement as well as resources and capacities from first generation, planning-oriented partnerships.

Innes and Booher's theory of network dynamics identifies three conditions that govern the relationship of agents in an effective collaborative network: diversity, interdependence, and authentic dialogue (DIAD). "Full diversity of interests among participants, interdependence of the participants who cannot get their interests met independently, and engagement of all in face to face authentic dialogue…" can "lead to an adaptive policy system in a context of complexity and uncertainty" (Innes & Booher, 2018, p. 35). Furthermore, Innes and Booher (2000,3) offer that "like a complex adaptive system, the DIAD network as a whole is more capable of learning and adaptation in the face of fragmentation and rapid change than a set of disconnected agents. Shared meanings emerge from the dialogue and participants can develop identities that link them together. As a result, they are enabled to act both independently and cooperatively for mutual benefit without central direction."

Innes and Booher (2018, 34) assert that collaborative networks and processes "are resilient in the sense that they can absorb radical change in the environment and still maintain their integrity like a standing wave." They also have the potential to be transformative, setting in motion cascades of changes in attitudes, behaviors, actions, practices, and institutions.

Innes and Booher identify several examples of collaborative networks across the U.S. with which they were directly involved with as facilitators or researchers. They highlight the following two cases of collaborative dialogues that largely followed the principles of their DIAD theory and had significant beneficial and transformative outcomes, including instigating institutional change.

The Sacramento Area Water Forum, which began in 1993 with representatives of 15 stakeholder organizations to work on water management in the Lower American River. It eventually spawned a number of successor and spinoff efforts that have pervaded the governance cultures in many policy arenas, including groundwater management, task forces for both the American River and Consumnes River, and even a regional transportation and air quality collaborative modeled after the forum.

The Cincinnati Policy Community Relations Collaborative began in 2001 when the U.S. Justice Department, the city and its police union and community groups protesting systemic racial profiling signed agreements to work together and develop new policies on the use of force, reporting and investigation citizen complaints, and new training requirements. These new publicly transparent procedures and dialogues eventually led to the police department's adoption of new policy, equipment and practice changes, officer monitoring and the introduction of community-oriented policing and a community police partnering center. Independent monitors noted a decline in crime and described the police department as fundamentally changed. There are critics, however, who believe that too much emphasis was given in the collaborative process to the future, and future changes, and that the police department lacked accountability for past deaths and earlier interactions.

III. The Path Forward

"Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has." — Margaret Mead

The work of transformative resilience in coastal Louisiana is a multi-dimensional challenge that transcends sectors and will need to take a different approach to be successful in the future. The approach must be regional in scale and must involve multi-sectoral partnerships and diverse communities of people, livelihoods and cultures.

Understanding the problem and drawing upon the scholarship on community transformation and multi-sectoral partnerships, we offer a conceptual framework for thinking about organizing for and implementing transformative resilience in coastal resilience; see Figure 5. At the center of the framework is Concordia's nexus of all the physical, cultural, social, economic, organizational and educational sectors that make up community life. Implementation, through an array of project-, policy- and program-specific investments, will happen in these different sectors and will vary in priority and emphasis over time. A series of cross-cutting, collaborative activities (i.e., information and scientific data management, technical and financial resource management, community organizing and advocacy, communication and engagement) and a commitment to large-scale monitoring and evaluation of measures and outcomes (i.e., equity, fiscal integrity, innovation, resilience, and transformation) are the responsibilities of a collaborative governance, multi-sectoral partnership. The collaborative governance, multi-sectoral partnership works to ensure that the transformative process, as a whole, is kept in balance. As implementation progresses, different sectors will be more active than others at different points in time and the collaborative governance, multi-sectoral partnership emphasizes cross-cutting, collaborative activities as needed to help ensure balance based upon what is revealed through its on-going monitoring and evaluation.

Figure 5. A conceptual framework for a collaborative governance, multi-sectoral partnership to implement transformative resilience.

While several potential approaches to advancing community transformation and multi-sectoral partnerships are discussed in this paper, they also reveal several unanswered questions and difficult issues that must be addressed to attain inclusive and holistic coastal transformation.

Planning for Coastal Transformation in Louisiana

Coastal resilience planning in Louisiana is currently being guided by two frameworks across one coast. The Coastal Master Plan's nonstructural risk reduction framework consists of: 1) non-residential flood proofing, 2) residential elevations, and 3) voluntary acquisition (CPRA, 2017) . The LA SAFE strategic framework consists of: 1) reshaping communities to receive transitioning populations, 2) retrofitting existing communities to adapt to current and future threats, and 3) resettling communities that retreat from the coast (LA SAFE, 2018). Also, as the state continues to recover from recent flood events that extend to all 64 parishes, Governor Edwards has issued

an executive order to create a "Watershed Council" to develop and implement a statewide, watershed-based floodplain management program through collaboration across state agencies (State of Louisiana, 2018b). Reducing risk from floods and storms is a common goal for all these efforts.

A lesson learned from the catastrophic failures of planning before the 2005 storms was to move beyond a siloed approach into a new regime of integrated planning. For the coast, the inclusion of social systems, indigenous wisdom, community knowledge, and participation in global knowledge exchange could continue to provide the information necessary for better planning outcomes. As Nordenson et al (2018, 3) suggest "[Climate change] could be the inspiration for imagining the transformation of cities into a new condition that is not only resilient to climate hazards but also greener, healthier, and more equitable." *As all these processes move forward, how can they be coordinated or integrated to deliver holistic transformation outcomes for coastal Louisiana? Are any policy changes necessary to empower planning coordination beyond those policies that already exist?*

Regulations and Tools for Coastal Transition and Transformation

As communities face the realities of a changing environment and its impact on people and place, new decision support tools and regulations will be necessary to further enable coastal transition and transformation. The concepts and frameworks set forth in this paper highlight possibilities to continue, advance, and integrate what is currently distributed across agencies and actors into a deliberate multi-sectoral planning, implementation, and monitoring program. *What new and/or underutilized tools and regulations would support a comprehensive coastal planning and implementation program and how could they be best utilized?*

Design for Coastal Transition and Transformation

Changing environmental conditions will inevitably instigate changes in policy and regulations for the built environment. Those changes will then force the design and engineering professions to adapt both their methods and resulting designs to meet the new standards. By utilizing an interdependent transdisciplinary framework that is guided by long-term vision, rooted in local knowledge and global exchange, adaptive and flexible in design approach, and cognizant of an ever-evolving environment, designers could have the information necessary to develop more responsive interventions to both the environmental and underpinning societal challenges coastal communities face. *How can innovative design processes and methods be best utilized to achieve more holistic and inclusive design outcomes?*

Governance and Financing for Coastal Transformation

The State of Louisiana runs the risk of fostering mistrust for future endeavors if the resources spent on planning ends with planning and does not progress in implementation. The challenges that remain are: a lack of funding to accelerate the strategies outlined in the plans and get projects to scale, a fragmented and distributed structure for long-term planning and

implementation, no official long-term strategy or structure to continue multi-sectoral partnerships, and no clear metrics or structure to monitor and evaluate adaptation and resilience outcomes.

The question of how to pay for adaptation and resilience programs and projects has been one of the major roadblocks to successful implementation thus far both in and outside of Louisiana. Considerations of equity in financing adaptation and resilience add a layer of complexity. *What are the possible sustainable public and private financing scenarios? How can pre-existing legal and structural barriers that may impede the access of some groups to financing to achieve whole community transformation best be addressed?*

As for the governance of a long-term multi-sectoral coastal transformation planning and implementation program, the post-Katrina/Rita planning case serves as a useful guide. After significant investment in planning following the 2005 storms, important questions emerged regarding how the state would continue those transdisciplinary planning efforts. In 2007, the State Legislature passed House Concurrent Resolution 229 to create a task force to make recommendations for the implementation of a comprehensive Office of State Planning to continue the integrated statewide planning begun after the storms (Gray & Hines, 2007). The recommendations of that task force were not implemented by then Governor Bobby Jindal and to date the state has undertaken no such effort. A decade later, similar questions have begun to emerge resulting from the investments in the Coastal Master Plan, LA SAFE and the recently created statewide Watershed Council initiative. *What new strategies and/or approaches are needed for a coordinated multi-sectoral state coastal resilience planning regime and what political capital might be necessary to enable this approach?*

IV. References

Campanella, R. (2008). *Bienville's Dilemma*. Lafayette, Louisiana: Univ of Louisiana at Lafayette.

Carmona, M., Manez Costa, M., Andreu, J., Pulido-Velazquez, M., Haro-Monteagudo, D., Lopez-Nicolas, A., & Cremades, R. (2017). Assessing the effectiveness of Multi-Sector Partnerships to manage droughts: The case of the Jucar river basin. *Earth's Future*, *5*(7), 750–770. https://doi.org/10.1002/2017EF000545

City of New Orleans. (2007). Unified New Orleans Plan: Citywide Strategic Recovery and Rebuilding Plan.

City of New Orleans. (2010, August). Plan for the 21st Century: New Orleans 2030 Plan. City of New Orleans, LA. Retrieved from http://www.nola.gov/city-planning/master-plan/

City of New Orleans. (2015, August). Resilient New Orleans: Strategic actions to shape our future city. City of New Orleans, LA. Retrieved from http://resilientnola.org/wp-content/uploads/2015/08/Resilient_New_Orleans_Strategy.pdf

City of New Orleans, Mayor's Office of Resilience and Sustainability. (2018). Gentilly Resilience District. Retrieved August 7, 2018, from https://nola.gov/resilience/resilience-projects/gentilly-resilience-district/

Concordia. (2013). Nexus. Retrieved August 10, 2018, from http://concordia.com/philosophy/nexus/

Concordia. (2017). Global Transformation Roundtable: Convening 1 Report Out. Concordia.

CPRA, Coastal Protection and Restoration Authority, State of Louisiana. (2013). Structure. Retrieved August 7, 2018, from http://coastal.la.gov/about/structure/

CPRA, Coastal Protection and Restoration Authority, State of Louisiana. (2017, June 2). Louisiana's Comprehensive Master Plan for a Sustainable Coast. Retrieved from http://coastal.la.gov/wp-content/uploads/2017/04/2017-Coastal-Master-Plan_Web-Book_CFinal-with-Effective-Date-06092017.pdf

Davoudi, S. (2012). Resilience: A Bridging Concept or a Dead End? *Planning Theory & Practice*, *13*(2), 299–333. https://doi.org/10.1080/14649357.2012.677124

Esnard, A.-M., & Sapat, A. (2014). *Displaced by Disaster: Recovery and Resilience in a Globalizing World*. New York, NY: Routledge.

Fussell, E. (2015). The Long Term Recovery of New Orleans' Population after Hurricane Katrina. *American Behaviorial Scientist*, *59*(10), 1231–1245. https://doi.org/10.1177/0002764215591181

Gibson, T. D., Pelling, M., Ghosh, A., Matyas, D., Siddiqi, A., Solecki, W., … Du Plessis, R. (2016). Pathways for Transformation: Disaster Risk Management to Enhance Resilience to Extreme Events. *Journal of Extreme Events*, *3*(1), Article 1671002. https://doi.org/10.1142/S2345737616710020

Gray, R., & Hines, S. House Concurrent Resolution 229, Pub. L. No. 229 (2007). Retrieved from http://www.legis.la.gov/legis/ViewDocument.aspx?d=442856

Holling, C. S. (1973). Resilience and stability of ecological systems. *Annual Review of Ecology and Systematics*, (4), 1–23. https://doi.org/10.1146/annurev.es.04.110173.000245

Holling, C. S. (1996). Engineering resilience vs. ecological resilience. In *Engineering Within Ecological Constraints*. Washington D.C.: National Academy Press.

Innes, J. E., & Booher, D. E. (2018). *Planning with Complexity: An introduction to collaborative rationality for public policy* (2nd ed.). New York, NY: Routledge.

Irwin, T., Kossoff, G., Tonkinwise, C., & Scupelli, P. (2015). Transitional Design Monograph. School of Design, Carnegie Mellon University. Retrieved from https://design.cmu.edu/sites/default/files/Transition_Design_Monograph_final.pdf

Kates, R. W., Travis, W. R., & Wilbanks, T. J. (2012). Transformational adaptation when incremental adaptations to climate change are insufficient. *Proceedings, National Academy of Sciences*, *109*(19), 7156–7161. https://doi.org/10.1073/pnas.1115521109

LA SAFE, Louisiana's Strategic Adaptations for Future Environments. (2017). LA SAFE | Louisiana's Strategic Adaptations for Future Environments. Retrieved August 7, 2018, from https://lasafe.la.gov/

LA SAFE, Louisiana's Strategic Adaptations for Future Environments. (2018). Summary of Strategy Development and Project Selection. State of Louisiana and the Foundation for Louisiana. Retrieved from https://s3.amazonaws.com/lasafe/2018/N-04/2018-Summary-Strategy-Development-Project-Selection.pdf

Louisiana Sea Grant, Coastal Program (1989). *1989 Regular and Extraordinary Sessions of the Louisiana Legislature* (Louisiana Coastal Law). Baton Rouge, Louisiana: Louisiana State University. Retrieved from http://www.laseagrant.org/wp-content/uploads/lcl_59.pdf

LRA, Louisiana Recovery Authority (2007, May). Louisiana Speaks Regional Plan: Visions and strategies for recovery and growth in South Louisiana. LRA.

Nordenson, C. S., Nordenson, G., & Chapman, J. (2018). *Structures of Coastal Resilience* (2nd ed.). Island Press.

Olsson, P., Folke, C., & Hahn, T. (2004). Social-ecological transformation for ecosystem management: the development of adaptive comanagement of a wetland landscape in southern Sweden. *Ecology and Society*, *9*(4), online.

Olsson, P., Galaz, V., & Boonstra, W. J. (2014). Sustainability transformations: a resilience perspective. *Ecology and Society*, *19*(4), Article 1 online. https://doi.org/10.5751/ES-06799-190401

Park, S. E., Marshall, N. A., Jakku, E., Howden, S. M., Mendham, E., & Fleming, A. (2012). Informing adaptation responses to climate change through theories of transformation. *Global Environmental Change*, *22*(1), 115–126. https://doi.org/10.1016/j.gloenvcha.2011.10.003

Pelling, M., O'Brien, K., & Matyas, D. (2015). Adaptation and Transformation. *Climatic Change*, *133*(1), 113–127. https://doi.org/10.1007/s10584-014-1303-0

Pressman, J. L., & Wildavsky, A. (1984). *Implementation* (3rd ed.). Berkeley and Los Angeles, California: University of California Press.

Sandfort, J., & Moulton, S. (2015). *Effective Implementation in Practice: Integrating Public Policy and Management*. San Francisco, CA: Jossey-Bass.

Sastry, N., & Gregory, J. (2014). The location of displaced New Orleans residents in the year after Hurricane Katrina. *Demography*, *51*(3), 753–775. https://doi.org/10.1007/s13524-014-0284-y

Sneath, S. (2018, April 11). Mississippi River can't keep up with land loss in delta, researchers find. Retrieved August 8, 2018, from https://www.nola.com/environment/index.ssf/2018/04/mississippi_river_delta_grew_r.html

State of Louisiana. (2018a). Isle de Jean Charles Resettlement Project. Retrieved August 7, 2018, from http://isledejeancharles.la.gov/

State of Louisiana, Executive Department. Louisiana Watershed-based Floodplain Management Coordination, Pub. L. No. Executive Order JBE 2018-16 (2018). Retrieved from http://gov.louisiana.gov/assets/ExecutiveOrders/JBE--18-16-Watershed-Council.pdf

Surminski, S., & Leck, H. (2017). From agenda-setting to implementation: The role of multisectoral partnerships in addressing urban climate risks. *Earth's Future*, *5*, 966–978. https://doi.org/10.1002/2016EF000497

The Data Center, Nonprofit Knowledge Works. (2017). Foundation for Louisiana LASAFE Final Report.

UNO-CHART, University of New Orleans Center for Hazards Assessment, Response & Technology. (2018). Global Transformation Roundtable Convening 2 Summary - Bura, March 14-15, 2018. University of New Orleans Center for Hazards Assessment, Response & Technology.

Vale, L. (2014). The politics of resilient cities: whose resilience and whose city? *Building Research & Information*, *42*(2), 191–201. https://doi.org/10.1080/09613218.2014.850602

Waggoner & Ball Architects. (2013, November). The Greater New Orleans Urban Water Plan. Retrieved August 7, 2018, from https://livingwithwater.com/blog/urban_water_plan/reports/

Walker, B., & Salt, D. (2006). *Resilience Thinking: Sustaining Ecosystems and People in a Changing World*. Island Press.

Weber, L., & Peek, L. (2012). *Displaced: Life in the Katrina Diaspora*. Austin, Texas: University of Texas Press.

Ziervogel, G., Cowen, A., & Ziniades, J. (2016). Moving from Adaptive to Transformative Capacity: Building Foundations for Inclusive, Thriving, and Regenerative Urban Settlements. *Sustainability*, *8*(9), Article 955. https://doi.org/10.3390/su8090955

Equity in Disaster Recovery, Mitigation and Adaptation

I. Introduction

The term **equity** can be defined as the absence of disparities (Putnam-Walkerly and Russell 2016). With regards to disasters, the term equity is essential to the way we understand the root causes of catastrophes, how we recover from them, and how we devise and implement mitigation and adaptation programs. Consequently, if there is one point we wish to communicate in this white paper, it is that **disaster mitigation and risk reduction must become synonymous with inequity reduction and equity making**. In the early 20th Century, disasters were often conceptualized as unavoidable calamities, "acts of god," or acts of nature. Consequently, governmental and non-governmental organizations charged with the task of responding to disasters saw these phenomena as discrete unpreventable events that could only be prepared for and responded to, but not necessarily mitigated or prevented before they occurred (Oliver-Smith 1999).

In the 1970s, a number of geographers, sociologists, and anthropologists began to notice a particular trend that challenged established understandings of disaster as unavoidable events (Hewitt 1983, Maskrey 1993, O'Keefe et al. 1976). Researchers involved in comparing disasters at a global scale noticed that the magnitude or presence of a hazard alone (e.g. earthquakes, hurricanes, tornados) did not guarantee the manifestation of a disaster. Earthquakes of magnitude 7 on the Richter scale, for example, can present a minor inconvenience in places where proper seismic resistance building construction codes are enforced, and construction is restricted to areas where terrain is less likely to magnify seismic waves. In contrast, an earthquake of the same magnitude can kill 25,000 people, as in the case of Guatemala in 1976, or more than 50,000, as we saw in Haiti in 2010. What transforms the hazard into a disaster are human practices that a) enhance the materially destructive and socially disruptive capacities of geophysical phenomena, and b) **inequitably** distribute the effects of a disaster along socially defined lines of gender, race, class, and ethnicity. Socially created **inequity**, then, is something that shapes disaster at various scales. It differentiates disasters at national and regional levels – as in the case of disasters that impact entire regions or nations because of historically imposed conditions of subordination to imperial and colonial global powers – and at local scales – as in the case of disparities along lines of race, class, gender, and ethnicity in affected localities that influence who is impacted and how, and who makes a speedy recovery and who does not.

Because **inequity** is such a critical element in the transformation of a hazard into a disaster, it is of paramount importance that it be addressed in disaster mitigation, recovery, and adaptation programs. Furthermore, addressing inequity requires an emphasis on equity in disaster risk reduction. In this white paper, we examine how inequity and equity matter in recovery, mitigation, and adaptation programs individually. We also provide examples of case studies that illustrate the diverse ways equity matters in these three realms of practice (recovery, mitigation, adaptation), and conclude by making a series of policy recommendations that should be prioritized in all disaster risk reduction programs, especially in the context of anthropogenic climate change.

II. Recovery

Post-disaster recovery involves the interaction between a variety of people in varying positions of social and political influence. These people include disaster survivors of a variety of socio-economic backgrounds, urban planners, disaster recovery experts, developers and industry leaders, elected and appointed government officials from local, state, and national levels, and non-governmental and non-profit organization staff to name a few. In the aftermath of catastrophic events, these reconstruction actors engage one another in a variety of contexts. In some instances, recovery planning processes require a participatory element where these people might interact. In other cases, non-governmental organizations bypass central and local state institutions and approach disaster survivors directly, carrying out recovery projects that aim to achieve specific institutional objectives. Other instances may involve the development of reconstruction programs through collaborations between the private sector, local and state governments, and these initiatives can include varying levels of public input (or none at all). What is relevant to this discussion is whether the concept and goal of **equity** is included in the policies and practices that emerge out of the discussions, planning processes, and policy development initiatives that so often characterize disaster recovery.

Social science research has demonstrated that some disaster recovery experts (e.g., urban planners), local government officials, and local elites can sideline concerns with equity in disaster recovery (Adams 2013, Barrios 2017, Marchezzini 2015). Recovery experts, for example, may emphasize the importance of "best practices" over equity concerns. The term "best practice" is problematic because it assumes that a particular course of action or policy is universally applicable, without considering the particularities of local histories of inequity-making, or the cultural specificities of the communities impacted by recovery programs. Additionally, local government officials and elites may regard those most vulnerable to disasters as "social undesirables" whose communities sit on prime real estate, and may consequently see disaster recovery as an opportune moment to carry out gentrification and urban renewal projects that do not address equity issues. Although this is not always the case, there are notable examples in the disaster recovery literature that point to key **instances when concerns with equity (and addressing inequity) are not** considered a primary focus of disaster recovery (Barrios 2014, 2017).

What is important to highlight once again is that disasters are not mere events, they are lengthy historical processes that begin long before a hurricane makes landfall, or a seismic fault line releases its tension. Disasters are historical-ecological processes where human actions enhance the socially disruptive and materially destructive capacities of geophysical phenomena. Furthermore, disasters do not end with the receding of flood waters or the cessation of tremors, they continue and can be compounded by recovery processes that do not take equity, local histories, and cultural practices into account (Oliver-Smith 1999). Because socially created inequalities are a key element giving a particular disaster its form (i.e., who is affected, who dies, who takes longer to recover or never recovers), equity concerns must be central to all recovery

processes. Additionally, conditions of inequity are historically produced, and present long before a natural hazard makes is way through a community, city, or nation. Consequently, **it is imperative** that concerns with equity in disaster recovery take local histories of inequity-making into account.

To highlight key instances when concerns with equity have been quite purposely sidelined in disaster recovery, we present two cases. The first is the case of recovery in New Orleans, Louisiana in the aftermath of Hurricane Katrina. The second is that of The US Gulf Coast and Houston, Texas following both Hurricane Katrina and Hurricane Harvey.

i. Example 1: Hurricane Katrina

When Hurricane Katrina's rainwaters caused multiple levee failures in New Orleans in 2005, they inundated a city that was the product of three centuries of race and class-based inequities. At the time New Orleans was first founded in the early 18th Century, flood risk was officially inequitably distributed along lines of race. The old colonial center, known today as the French Quarter, was constructed over the ancient natural levees of the Mississippi River, which, to this day, are above sea level and are very unlikely to flood (Campanella 2006). Under French Colonial law, only people who could prove a complete French genealogy could legally purchase land within the colonial city (Hirsch and Logsdon 1992). In a similar way, the plantations outside the city usually featured the construction of the owner's mansion on the river's levee, at higher elevation and less flood risk, while servant's quarters were constructed on the lower elevation land away from the river's shore, making them more flood prone.

New Orleans' late 18th Century expansion beyond the French Quarter, known today as Faubourg Tremé, was the first part of the city where free people of color could legally purchase land (Campanella 2006, Toledano et al. 1980). Because the Tremé is located to the northwest of the French Quarter and extends away from the Mississippi River, it features a gradual elevation loss and is therefore more likely to flood (Campanella 2006). Throughout the city's Colonial period and the 19th Century, the city's elite families constructed their homes on the ridges left behind by the Mississippi's ancient levees. To this day, major thoroughfares where elite homes are located feature higher elevations. Such is the case of Gentilly Boulevard, St. Charles Avenue, and Esplanade Avenue. Across the urban landscape of New Orleans, social inequity along lines of race and class is inscribed into the city's architecture, and is directly related to the inequitable distribution of flood risk. In the present, New Orleanians recognize the distinction between Front of Town (elite, predominantly white, less flood prone, showcase thoroughfares) and back of town (working class, racially and ethnically mixed, more flood prone neighborhoods)(Breunlin and Regis 2006, Regis 1999).

Race, space, and flood risk distribution was also shaped by the white flight that followed desegregation in the 1960s. In 1960, the city of New Orleans had a population of 627,525, with 233,514 (37%) of these residents self-identifying as Black in the US Census. By 2004, New Orleans' population had declined to 462,269, and the percentage

of residents who self-identified as Black increased to 68% (Campanella 2006, US Census 2016). Prior to desegregation, the City of New Orleans observed a practice of providing separate and unequal public services to its white and black residents. Public schools with African American students, for example, systematically received less than one third the financial resources per student of their white counterparts (Cowen Institute 2018). With de-segregation, many white New Orleanians chose to relocate to suburbs in western Jefferson and eastern St. Bernard Parishes, taking job opportunities and well-funded public schools with them, and forcing many working class African Americans into an imposed condition of urban squalor. Middle class and affluent African Americans also left, some leaving the State of Louisiana to seek employment opportunities in job markets less fraught by racism, others moving to New Orleans East (Jackson 2011). Following de-segregation, the Housing Authority of New Orleans (HANO) followed a pattern of systematic neglect of public housing facilities, allowing the buildings to deteriorate to the point where their demolition and privatized re-development could be easily justified. Many New Orleanians, in turn, often turned to racist discourses to explain the demise of public housing, blaming its African American residents for its condition, rather than white flight and structural racism (Breunlin and Regis 2006).

While a new plan for the city was being created, so was an immediate plan to tear down public housing. Housing in the aftermath of Hurricane Katrina is a multi-layered, complex and divisive topic, particularly in public housing. In New Orleans, the homes that were the strongest and built on the highest ground housed the city's poorest people. The public housing developments in New Orleans that existed during the most active hurricane season on record at the time were built during the WPA program of the Roosevelt Administration. While New Orleans' public housing developments had various challenges around social policy, crime, and generational poverty, the physical structures of the buildings were established to withstand both hurricane force winds and the water that would eventually come based on the city's topography.

As Katrina turned towards southeast Louisiana, officials in New Orleans began to contemplate the worst and many of the city's poorest residents prepared to ride out the storm in the public, housing. Law enforcement raided the homes of tenants in the St. Bernard and Iberville public housing developments (and in public housing across the city), and forced them to leave their homes at gunpoint. Limited space of mass emergency transportation resulted in a limited amount of personal belongings allowed to travel with each passenger. Residents were not told where they were being forced to go and almost all who were evacuated by gunpoint were given one-way tickets to cities that they had never been and had no family or other support system. Meanwhile, homeowners in the city's wealthy uptown neighborhoods were offered the choice of evacuation- and when refused, their homes were patrolled to ensure looting and other criminal activity was kept to a minimum.

In the months of recovery – after the flood waters subsided, residents of public housing fought to retrieve personal items that were barricaded-in as part of a public housing lock out. And while public housing residents, activists, lawyers and national political leaders fought to have public housing re-opened to residents – the City of New

Orleans joined with national organizations, architects, businesses and urban planners to seek the right opportunity to re-conceptualize public housing and lead a new round of significant federal financial investments. This unprecedented disaster had become an opportunity to make citywide changes that would impact the physical look and demographic reality of New Orleans.

What could have been weeks of climate displacement turned into months of government (local and national) forced displacement for the city's poorest residents. Decision-makers seized mass displacement as an opportunity to address "population density" in public housing. Plans to restore the city centered on proposals to tear down and rebuild public housing in New Orleans, including buildings that neither flooded nor succumbed to wind damage during the hurricanes of 2005. Public housing residents were locked out of their homes for more than a year, and many – unable to return from their one-way tickets out of New Orleans – never retrieved their personal photos, diplomas, documents, or generational family objects. This type of planning went on throughout the Gulf Coast, as many cities engaged in an immense and decade-long recovery. Whole communities and cities were "re-conceptualized". The rebuilding of the Gulf Coast cities like Bayou Labatre, AL, Biloxi, MS, New Orleans, LA, brought together the best minds putting forth the best ideas on top of a devastated landscape devoid of most of its people. And if the notion of equality made it into some conversations of recovery, the concept of equity was elusive, if present at all.

In the aftermath of Hurricane Katrina, recovery and planning experts working for the Unified New Orleans Plan (UNOP) failed to make equity a central concern of the city's recovery. The Department of Housing and Urban Development (HUD) and HANO saw the floods triggered by the hurricane as an opportune moment to expedite a long-standing trend of disinvestment from public housing. Without public input, HUD and HANO ordered the city's four main public housing facilities closed after the storm (even though they were all minimally damaged) and planned for their demolition and redevelopment as mixed income housing. At the same time, the US Federal Government required the City of New Orleans to devise a plan for urban recovery through a participatory process, and UNOP was designated to fulfill this requirement. Even though local government authorities characterized UNOP as a planning process where all residents of New Orleans could be potential author's of the city's reconstruction directive, residents were later informed that some key recovery decisions, like the demolition of public housing, had been made *a priori*, and residents would have little say over the fate of this public resource (Barrios 2011, 2017).

In neighborhoods like Tremé, many residents passionately argued for the preservation of public housing during UNOP participatory planning activities, but urban planners denied their requests, insisting New Orleanians should think about their city as a site of capital investment, and not the provision of public services. These capitalist narratives of disaster recovery on the part of planning experts upheld the idea that the city is, first and foremost, a site of capital replication as an unquestionable "best practice." In doing so, they promoted capital replication as a priority over equity. Equity, in this instance, would have recognized that the overrepresentation of African Americans in

public housing, poverty levels, and vulnerability to floods, was the product of historically imposed inequity, and that recovery should therefore address inequity reduction in the form of providing safe and affordable housing for New Orleans' most socio-economically vulnerable residents. In contrast, narratives of the city as a site of capital investment completely ignored the city's history of inequity, and effectively eradicated equity from recovery priorities.

A case in point was the redevelopment of Lafitte Public Housing, which housed 900 families before the storm. Nearly ten years after Katrina, only 120 of the facility's previous families had been able to return. In 2013, the city was missing 111,000 of its African American residents, demonstrating that the lack of focus on equity resulted in recovery efforts that failed to assist those who needed help the most. To this day, urban planners and recovery experts involved in UNOP defend their roles in the planning process, insisting that the decision to redevelop public housing was imposed on them by HUD and HANO. Nevertheless, if equity were at the forefront of recovery priorities, it would have been their ethical obligation to work as advocates of New Orleans' most vulnerable residents, rather than powerful institutional stakeholders.

ii. Example 2: FEMA recovery funding after Hurricane Katrina and Hurricane Harvey in the US Gulf Coast

In the aftermath of both Hurricanes Katrina and Harvey, the Federal Emergency Management Agency (FEMA) upheld the policy that its funds can only be used to cover the expense of damage done by the natural hazard that triggered the emergency phase of the disaster in question (floods), and not the expense of addressing long-standing neglect of infrastructure due to political and socio-economic factors. This policy reinforces a view of "the disaster as hazard," in other words, erroneously conflating the hazard with the disaster. As explained in the introduction of this white paper, a hurricane itself is not a disaster. A disaster is a process that is, more often than not, a historically lengthy one, where human actions give a catastrophe shape and magnitude. The cases of the Lower Ninth Ward in New Orleans, Louisiana; Biloxi, Mississippi; and East Houston in Houston, Texas in the aftermaths of Hurricanes Katrina and Harvey demonstrate how the hazard-centered approach of FEMA's policy runs counter to established scientific knowledge about disasters, and not only disregards **equity** as a key element of recovery, it actually perpetuates **inequity**.

The Lower Ninth Ward is a neighborhood that experienced systematic marginalization and neglect on the part of New Orleans City Government for decades prior to Hurricane Katrina. The neighborhood was originally founded in the late 19th Century by German and Italian immigrants and free people of color, and developed as an area of small family farms (GNOCDC 2007). In the early 20th Century, real estate brokers marketed the neighborhood as a place of residence for working class African Americans who had limited options for housing due to segregation. At the same time, the US Army Crops of Engineers built a navigation channel and wharf know as the Industrial Canal, which cut the neighborhood off from easy access to the rest of the city, and

effectively increased the neighborhood's flood risk (the levee failures along this canal catastrophically flooded the lower 9th Ward and killed at least 75 residents). In the mid-century, the Industrial Canal was directly connected to the Gulf of Mexico via another human-made navigation channel, the Mississippi River Gulf Outlet (MR-GO), which had a significant environmental impact on surrounding wetlands, causing saltwater intrusion that devastated nearby cypress forests and bayous, which would have diminished Katrina's impacts on the area. The construction of the Industrial Canal and the MR-GO are classic cases of **environmental injustice**. These infrastructure features were built in areas populated by working class and minority New Orleanians who had little input on the development process, and who were left to suffer the ensuing **inequitable** flood risk. Meanwhile, the Port of New Orleans and maritime companies benefitted from increased revenue.

Like many other parts of New Orleans, the Lower 9th Ward was hit hard by post-desegregation white flight. Today, the Lower 9th Ward is composed of two neighborhoods, Holy Cross and the Lower Nine. Pre-Katrina, Holy Cross had a population of 5,507 residents living in 1,982 households. Of these residents, 87.5 % self identified as Black in the 2000 census, while 9.4% self identified as white, with much smaller percentages self-identifying as Hispanic, Asian, and American Indian. Forty eight percent of Holy Cross households reported an income lower than $20,000 per year, while 3.3% reported an income over $100,000. At the same time, the Lower Nine had a population of 14,008 residents who lived in 4,820 households. Of these residents, 98.3% self-identified as Black in the 2000 Census, while only .5% self-identified as White. No residents self identified as Asian or Native American, and only 0.5% identified as Hispanic. In the Lower Nine, a greater percentage of households reported earning less than $20,000 per year (50.4%) than in Holy Cross, and a lower percentage reported earning more than $100,000 per year (1.6%). While a significant proportion of residents in both neighborhoods lived in precarious economic conditions (as evidenced by the percentage of households earning less than $20,000 per year), both neighborhoods also featured socio-economic heterogeneity, with 18.1% of all Lower Nine and 22.5% of Holy Cross households reporting incomes between $40,000 and $70,000 per year. Even though the neighborhoods were home to a significant number of economically marginalized families, the neighborhoods also counted a small number of households whose income was higher than the average income for Orleans Parish households, earning less than $200,000 per year (35,693). Finally, a greater number of residents owned their houses in the Lower Nine (59%) than in Holy Cross (41.8%), and the Lower Nine percentage exceeded the homeownership rate in Orleans Parish as a whole (46.5%) (GNOCDC 2007, United States Census Bureau 2000).

The census data for the Lower 9th Ward as a whole paint a picture of forced racial homogenization caused by white flight and imposed urban poverty. But the socio-economic marginalization of the Lower Ninth Ward did not end there. The general population decline translated into diminished tax revenue for the city, and a dramatic decline in the provision of public services. For decades, the City of New Orleans systematically neglected the upkeep of neighborhood streets and sewage infrastructure in the area, effectively creating **inequity**. In the aftermath of Katrina, Lower 9th Ward civil

society leaders and residents found themselves battling FEMA assessors who insisted much of the damage reported was not storm related, but the effect of decades of neglect. Therefore, key infrastructure recovery projects like road rehabilitation remained stalled.

In the case of post-Harvey Houston, the historically neglected and predominantly working class African American and Latino residential area of North East Houston faced similar aid denials on the part of FEMA, especially concerning applications for assistance with home repair (Snyder 2018). East Houston is known for its history of socio-economic marginalization and environmental injustice. It is disproportionately burdened with the presence of landfills and superfund sites (Bullard 1987). Post-Harvey, FEMA has denied claims in this part of Houston, alleging that the reported damage is the result of deferred home maintenance. This FEMA policy is based on an erroneous understanding of disaster as a hazard with a limited temporal span, and not disaster as a historical process with a limited emergency phase. Granted, FEMA personnel may make the case that their agency has a limited budget, and that addressing issues of long term marginalization along lines of race and class lies beyond the resources they command. This reality only serves to underscore the need for disaster mitigation and recovery experts to recognize that disasters are historical processes of **inequity.** It also underlines the need to foreground **equity** not only in disaster recovery, but in disaster mitigation as well, long before a hazard manifests itself and sets off the response phase of a disaster. To put it another way, disasters are not anomalies; they are engendered in normatively accepted everyday societal practices (Oliver-Smith 1999). Disasters are not things that besiege society from the outside, they are created *by* society.

Since the late 1970s, the United States has supported policies around labor laws and tax revenue collection that glorify inequity as the natural and just result of an imagined meritocracy that is not affected by racism, classism, sexism, xenophobia, or ethnocentrism. The result of this policy trend has been a dramatic rise in inequality among American citizens (Obama 2016), let alone the inequities between citizens and "undocumented" immigrants, who are now one of the most vulnerable populations in disaster contexts. **Disaster mitigation and risk reduction must become synonymous with inequity reduction and equity making**. Disaster risk reduction specialists may be frustrated by this observation, replying that such a broad focus on inequity reduction makes their work impossible due to their institutional and legal jurisdiction. It is necessary to transform our thinking about disasters in a way that recognizes equitable society-building as a key pillar of mitigation.

Equity requires recovery processes to find worth in the unwritten words of the most marginalized communities that have been devalued to invisibility through socio-political structures and processes of extraction and attack. For equity to be true, it must be at the core of disaster response, recovery and rebuilding plans. Those most marginalized must be included in the conceptualization, not just the conclusion, of the plan. They must be given the opportunity to contribute thought leadership, not just tokenized affirmations.

To choose equity is to dare to achieve a higher state of our humanity. There must be a social agreement to advance and protect the human rights of all people, thereby no longer

sacrificing the most marginalized in favor of the few that have been structurally guaranteed to succeed. There can no longer be a simple calculation of equal parts for distribution, benefit, or shared work going forward. Instead, the ability to value repairing past harms and aggregated impact through an equity and justice lens must be the starting point for recovery in the new climate reality.

III. Mitigation

We define mitigation as the process of reducing disaster vulnerability, especially before a catastrophe-triggering hazard presents itself. As noted in the introduction, in the early 20th Century, many people saw disasters as unavoidable acts of God or "nature." With the development of the vulnerability approach to disasters from the late 1970s to the 1990s, a new possibility emerged. If disasters were, in fact, processes shaped to a great extent by people's actions (e.g., unsustainable land use and development practices, social inequity-making), then perhaps they could be mitigated before they even occurred, if not avoided altogether. While there have been great advances in academic knowledge about disasters in the last forty years, it is unfortunate that actual disaster risk reduction has not kept pace. The Hyogo Framework for Action 2005-2015 (HFA), for example, was an international agreement among 168 member states of the United Nations designed to reduce disaster losses in the form of human lives and the destruction of socio-economic and environmental resources at a global scale (UNISDR 2015). The creation of the Hyogo Framework was accompanied by the establishment of a series of repots known as the Global Assessment Report on Disaster Risk Reduction, also know as the GAR, which were meant to track the progress achieved under the international agreement. In 2015, the milestone year that marked the completion of the Hyogo Framework's timeframe, the GAR reported that:

> "The expected outcome of the HFA has only been partially achieved. Twenty-five years after UN Member States adopted the International Decade for Natural Disaster Reduction (IDNDR) and ten years after the adoption of the HFA, global disaster risk has not been reduced significantly. While improvements in disaster management have led to dramatic reductions in mortality in some countries, economic losses are now reaching an average of US$250 billion to US$300 billion each year…**More critically, both the mortality and economic loss associated with extensive risks in low and middle-income countries are trending up**" (UNISDR 2015, XIV, emphasis added).

To more thoroughly explore why risks are trending up in many parts of the world, we now turn to the example of the Road Home to Recovery program in post-Katrina New Orleans.

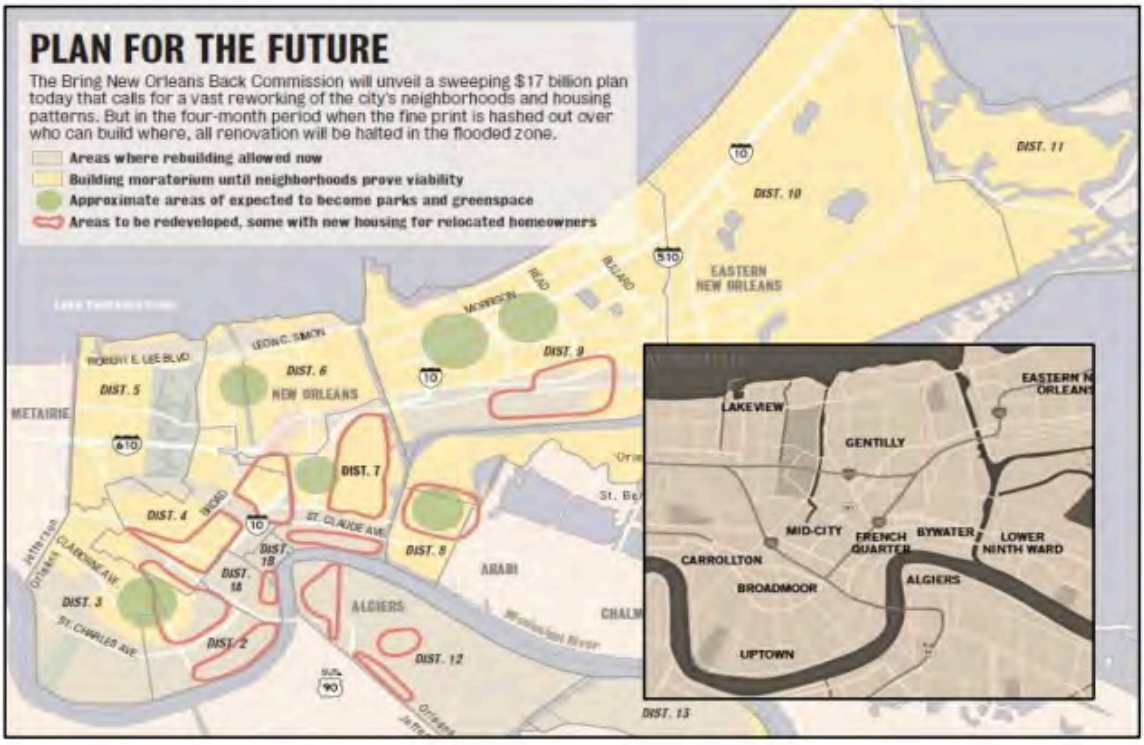
i. Example 1: Road Home to Recovery

One of the key limitations of FEMA disaster recovery programs is that they often assume the recipients of aid are home-owning, college educated, middle class people who head heterosexual nuclear families. These assumptions did not map very well onto In Pre-Katrina New Orleans, where more than 50% of city residents were renters (in public housing and also in generational rentals), who were poorly served by failing public schools, political representation was dominated by multi-national and fortune 500 corporations, and many experienced one of largest racial wealth divides in the country. Unfortunately, these realities present an ideal case study for identifying how current federal policies advance inequity in recovery. In addition, using these same outdated policies in coastal recovery against the backdrop of climate change is a missed opportunity to advance regional and system-wide mitigation efforts that use an equity framework.

The Road Home program of Louisiana was created to assist those New Orleanians who either did not have flood insurance, or whose flood and home owner's insurance payments failed to cover the cost of completely rehabilitating their homes after Hurricane Katrina. State grants for home repair were calculated using the market value of homes, the assessed damage, and the insurance payouts. Without an equity lens, this program allowed those who continue to benefit from historic systems of segregation and redlining to benefit once again. Legally mandated segregation was a main driver for locating Black communities in flood-prone areas, like the Lower 9th Ward. This area had the city's highest rate of Black homeownership, in large part because this is where Black people were allowed to own homes. Some may even argue that the low rate of homeownership and the higher than national average rate of renters in New Orleans is as much about poverty as it is about which geographic locations Black families are supported/encouraged to enter the homeowner market.

Federally supported approaches of devaluing Black community assets through the process of historic redlining continue to drive market values of majority Black neighborhoods. In the aftermath of Katrina, homeowners in majority Black neighborhoods with the same square footage as homeowners in majority White neighborhoods were awarded fewer grant dollars to repair their homes (Greater New Orleans Fair Housing Action Center, 2011). Although materials and hourly construction work cost the same for both, only the homeowners with higher market value home qualified for enough money to completely recover their homes and swiftly return to the city.

The injustice in the valuation of damaged homes is one part of the missed opportunity. An additional missed opportunity relates to how and where homes could be rebuilt. During the recovery, planners presented green dot maps to residents of New Orleans as notice of what would be rebuilt and what would remain "green space".



Because segregation led to high homeownership in flood prone areas, it was no surprise that a mathematical approach to urban redesign left minority communities out of the rebuilding plans. Community outcry helped to push for a more inclusive planning process that was never implemented – creating an even more tense recovery for residents dealing with new and generational trauma.

An equity approach to rebuilding New Orleans after Hurricane Katrina could have helped to usher in a process that addressed historic, current, and future threats to community property and autonomy. Instead of rebuilding back to the way things were, the recovery period in climate disaster presents an opportunity for the federal government to be a leader in developing policies that require new construction that mitigates current impacts of historic segregation of US cities, mitigates the likelihood of future flood (or wind) damage, and mitigates the role of the US in fossil fuel extraction and greenhouse gas emission by advancing solar and wind generated energy systems. With the right political will, mitigation using an equity lens allows for restorative justice, economic justice, and climate justice.

IV. Adaptation

Anatomically modern human beings (*Homo sapiens*) first appear in the archaeological record between 200,000 and 150,000 years ago. Originating in the African Continent, our species has radiated throughout the planet in the succeeding millennia, settling and devising means of subsisting and thriving in a variety of environments. From frozen arctic latitudes to coastal and mountainous regions, people have developed toolkits

that include technologies, social organization, and cultural values that are key to their survival in very different localities. We call this ability to not only survive, but to thrive in a manner that is meaningful and sustainable over prolonged periods of time "adaptation."

A key challenge of understanding and operationalizing the concept of adaptation is that we often make a number of assumptions in speech or writing that do not bear out in the anthropological and historical record. One of these assumptions is the idea of stability and lack of change that can accompany the concept of adaptation. Adaptation, for example, might conjure visions in our minds of a harmonious and unchanging relationship between people and their environment, an ecological utopia. These visions of adaptation uphold the idea that there is first an environment that is then populated by people who devise ways of leaving it unchanged. In contrast, the archaeological and anthropological records reveal that human beings play an important role in modifying, if not altogether transforming, the environments in which they live. Even seemingly pristine environments populated by indigenous communities in the Amazonian rainforest, for example, have featured careful modifications on the part of people that transform the forest into a garden. While this transformation is invisible to the outsider's eye, for whom the forest continues to look like an unchanged environment, local populations know very well where they may harvest the fruits of their gardening labors. The key point here is that environments, with or without human presence, never remain unchanged (Descola 2005, Pickering 2008). In the last 200,000 years, new species have evolved (especially ours), others have become extinct, and no environment has remained static. The meanders of the body of water we call the Mississippi River, for example, have moved with or without human presence, and it is this movement that led to the development of the Mississippi River Delta itself (Pickering 2008).

While no environment has remained unchanged, what we must account for in order to understand equity issues in adaptation are changes in the rate of environmental change itself, especially since the mid 19th Century. Scholars who research the relationship between people and their environments (Descola 2005, Ingold 2000, Latour 1993) agree that all people, regardless of cultural background or historical period, have modified their environments. Nevertheless, they also agree that not all people have changed their environments in the same way and to the same effect, and they notice significant changes in human-environment relations beginning in the 16th Century era of European colonial expansion, and even more so following the onset of coal and oil driven industrial production in the 19th Century.

Colonization of the Americas in the 16th Century, for example, featured the dramatic disruption of agricultural production and ecological systems that had calamitous effects on local indigenous populations. Highly sustainable and well-adapted agricultural systems in Central Mexico and what is today's Central America were replaced with inequitable land tenure systems and cattle ranching that favored the economic interests of Iberian settlers, and dramatically impoverished indigenous peoples. The results of this were both environmental degradation and an exponential rise in mortality, claiming millions of indigenous lives. The environmental impacts of colonization compounded

with the colonial practices of ethnicity-based discrimination; gave form to the disasters of the 20th Century. Some of these disasters, like the Guatemalan 1976 earthquake, were so dramatic in their inequitable effects that they became exemplary studies of the role of inequity in disaster vulnerability (O'Keefe et al. 1976). While the adaptations of pre-Columbian indigenous populations were far from perfect, and sometimes resulted in mismanagement of natural resources (as in the case of the 10th Century Central Maya Lowlands), the impacts of colonization were dramatically more severe and had longer-lasting implications. The inequities in access to natural resources and wealth distribution instituted over colonization made it so small scale farmers are incapable of adapting to their environment in many parts of Central America and Mexico to this day, as they are besieged by land tenure laws, economic policy, and armed conflicts that impede their ability to take ownership and stewardship of their territory (Barrios 2017, Jansen 1998, Stonich 1993).

Concerns with adaptation must then take into consideration structural inequities that inhibit the ability of certain groups (often differentiated along socially created lines of race, class, ethnicity, and gender) to fully practicing their adaptive abilities. A case in point here are the Native American communities of Alaska (Marino 2015), some of which have resided in their present localities for over 1,000 years (Maldonado et al. 2015), which is evidence of their capacity for adaptation. Unfortunately, due to anthropogenic climate change and its related polar ice cap melt and sea level rise, communities like Shishmaref and Barrow, Alaska, are now facing the decision to relocate. In this instance, the rate of environmental change is driven not by the practices of these communities, but by industrialization that made other human beings wealthy in remote locations; yet indigenous communities are the ones who must pay the ultimate price of industrial development.

Prior to colonization, adaptation to a rising sea and melting North Pole would have involved movement to a locality that would allow continuity of livelihood and cultural patterns (Marino and Lazrus 2015) and, to this day, this is the vision of successful relocation among members of these communities. Nevertheless, under conditions of colonization that continue to this day, the movement of communities within the territory of settler nation states is severely curtailed by foreign cultural values such as private property ownership and foreign economic forces. Imposed conditions of inequity introduced through colonization, then, inhibit the adaptive capacities of those communities that are most impacted by anthropogenic climate change. Discussions of adaptation and resilience that ignore **histories of inequity**, then, fall into the intellectual trap of assuming all human beings affected by disasters or disaster risk enjoy the same white colonial settler privilege, which they do not. An emphasis on equity in adaptation, then, must recognize that human beings confronting the effects of coastal loss, sea level rise, and anthropogenic climate change are not all on a level playing field, and that equity in adaptation requires an **environmental justice approach** that preferentially allocates resources to those who need them most, in order to make up for centuries of inequity.

Equity as Adaptation – New Orleans is often thought of as a coastal city. And while it sits near the Gulf of Mexico and hosts the Mississippi River’s busiest, largest and oldest port,

New Orleans is not located on Louisiana's coast – at least not yet. Louisiana loses the equivalent of a football field of land every hour, and it has lost land the equivalent of the Grand Canyon since the turn of the 20th century. The climate crisis has accelerated sea level rise around the globe, and the extraction of fossil fuels contribute to both extreme weather and the subsidence of land by the sea in deltas around the globe – including south Louisiana.

Land loss in south Louisiana necessarily means a different reality for the cities just north of the coast (like New Orleans) that depend on coastal land as disaster protection. Science proves that flooding once relegated to the lower parishes of Louisiana will now be an issue for communities further inland. To address this changing reality, various adaptation efforts are being considered and attempted. Adaption efforts, however, are not always connected to the climate crisis and the known realities expected in the near future.

In its Climate Ready Estuaries report, the US. Environmental Protection Agency (EPA) addresses adaptation options that preserve coastal land and development, focus on land use planning and management, land exchange and acquisition programs, and changes to infrastructure:

> "These adaptation options primarily aim to preserve coastal land on which development is planned or already exists. Land use management involves using integrated approaches to coastal zone management as well as land use planning. Land exchange and acquisition programs allow for coastal land to be freed up for preservation uses. Changes to infrastructure can include limiting where hazardous and polluting structures can be built (including landfills and chemical facilities), as well as changing engineering structures that affect water bodies and will be impacted by climate change. Land use planning and management, as well as changes to infrastructure, would be appropriate adaptation options for programs looking to implement anticipatory changes. These options require working with various key stakeholders and a longer timeline for implementation. Land exchange and acquisition programs would be viable options for estuaries that have a management goal of acquiring more land in order to protect currently threatened areas" (2009, p. 10).

The Climate Ready Estuaries report (lists the creation of "permitting rules that constrain locations for landfills, hazardous waste dumps, mine tailings, and toxic chemical facilities" (2009, p. 10). As the reality of New Orleans becoming a coastal city draws closer every hour, adaptation planning and protocols must address the existing energy and economic infrastructure.

In March of 2018, Entergy – one of Louisiana's three fortune 500 companies – successfully lobbied the New Orleans City Council to approve a $210 million gas-fired power plant proposed for New Orleans East. New Orleans East is home to the city's largest Vietnamese community, a growing Latino immigrant community, and a long-standing middle-class African American community. It is also the area of the city that has

received the least amount (per capita) of recovery investment from the impacts of Hurricane Katrina in 2005. Asserted as a need to address peak power demand and provide electricity after storm impacts on electricity services, this Entergy gas-powered plant would be located in devastated marshland and shipping canals responsible for the region's worst environmental damage during Katrina. In addition to the questions of its need and higher rates for basic utility services, residents of New Orleans East and community groups emphasize the dangers of the location of this gas-powered plant, especially during what will be more frequent, extreme weather that causes widespread flooding (Litten 2018).

As part of a new terminology to acknowledge the economic opportunity in disaster, the business of adaptation is often understood as part of a restoration economy. State and municipal budget gaps, unemployment, and disaster planning are integrated into plans for economic growth with concepts of fairness, justice or environmental protection rarely used as guides for decision-making.

Adaptation requires an acceptance of the science of climate change and the inevitable changes in land and land use. Adaptation with equity requires an understanding of socio-political realities facing all levels of society, and requires a reexamination of industry and infrastructure located in and impacted by these changes.

As South Louisiana grapples with adaptation efforts on its coasts, it faces a federal mandate, as well as an opportunity to achieve the EPA Climate Ready Estuary standards and "preserve coastal land on which development is planned or already exists." Louisiana can do this by "limiting where hazardous and polluting structures can be built (including landfills and chemical facilities) as well as changing engineering structures that affect water bodies and will be impacted by climate change." The battle is not with the climate reality, but rather with how political leaders and decision makers balance supporting the profit margins of large corporations with the safety, vulnerability, and human rights of generationally marginalized communities located in the impact zone for more frequent and more extreme weather – the frontlines of climate disaster.

V. Policy Recommendations

The notion of "equality" generally sets the high-water standard for work, planning, and even disaster recovery. Equality looks forward, and is rooted in the privileged assumption that all is equal and should remain equal. Equity, however, is rooted in the notion of justice, and necessarily requires an acknowledgement and commitment to repair past wrongs.

Too often, plans for a new and better tomorrow are made without the voices of people who experienced our planet's most unjust and inhumane realities. Communities accessed only to affirm what has been decided for them are deprived of autonomy and, when done systematically for generations, have their human right to self-determination eroded. Equity in disaster recovery means that the people cannot just be consulted,

warned or put on notice, but rather should be invested in at the socio-political level to engage in processes that promote community autonomy, self-determination, and true democracy.

There is a current trend in policy that supports the reduction of state institutions and budgets charged with the task of providing society's most vulnerable populations with the resources they need (e.g., affordable housing, disaster recovery aid) in order live meaningful sustainable lives and recover from disasters. This logic upholds the idea that state resources are better spent on supporting the private sector, and that the private sector will one day provide the resources necessary for social wellbeing through trickle down economics. Another element of this policy movement is that environmental and labor regulations hinder the capacity of capital to replicate itself, and should therefore be diminished. This notion that market liberalization and the reduction of those governmental organizations that provide public services will lead to optimal social ends is known as neoliberalism. Neoliberal approaches to disaster recovery, however, are characterized by their willful ignorance of histories of inequity that make some populations disproportionately susceptible to the impacts of disaster and its aftermath. The case of the "recovery" of New Orleans highlighted in section II of this document is a case in point. Neoliberal approaches to disaster recovery uphold white middle class privilege, because they draw a purposeful curtain over the histories of racism and ethnocentrism that have limited the social and spatial mobility of ethnic and class minorities in disaster affected localities, and provide utopian solutions whose benefits are not accessible to members of historically marginalized groups. Consequently, disaster recovery, mitigation, and adaptation policy should never subject disaster survivors or populations living in conditions of disaster risk to cost benefit calculations. Instead, it must be understood that we have a collective societal debt to historically disenfranchised communities. Disasters present an opportunity to begin to ameliorate long-standing injustices.

References

Adams, Vincanne. 2013. *Markets of Sorrow, Labors of Faith: New Orleans in the Wake of Katrina*. Durham: Duke University Press.

Barrios, Roberto E. 2011. “"If You Did Not Grow Up Here, You Cannot Appreciate Living Here": Neoliberalism, Space-time, and Affect in Post-Katrina Recovery Planning.” *Human Organization* 70 (2): 118–27.

Barrios, Roberto E. 2014. “"Here, I'm not at ease": Anthropological perspectives on community Resilience.” *Disasters* 38:329-350.

Barrios, Roberto E. 2017. *Governing Affect: Neoliberalism and Disaster Reconstruction.* Lincoln: University of Nebraska Press.

Breunlin, Rachel, and Helen Regis. 2006. “Putting the Ninth Ward on the Map: Race, Place, and Transformation in Desire, New Orleans.” *American Anthropologist* 108 (4): 744–64.

Bullard, Robert D. 1987. *Invisible Houston: The Black experience in boom and bust.* College Station: Texas A & M University Press.

Campanella, Richard. 2006. *Geographies of New Orleans: Urban Fabrics before the Storm*. Lafayette: Center for Louisiana Studies Press.

Descola, Philippe. 2005. *Beyond Nature and Culture* Chicago: University of Chicago Press.

GNOCDC (Greater New Orleans Community Data Center). 2007. “Pre-Katrina Data Center Web Site.” Retrieved September 4, 2018 (http://www.gnocdc.org/prekatrinasite.html).

Greater New Orleans Fair Housing Center. (2011). “State Amends Problematic Hurricane Relief Program.” Retrieved August 30, 2018 (http://www.gnofairhousing.org/2011/07/07/state-ammends-problematic-hurricane-relief-program/)

Hewitt, Kenneth, ed. 1983 Interpretations of Calamity: From the Viewpoint of Human Ecology. Boston, MA: Allen and Unwin.

Hirsch, Arnold, and Joseph Logsdon, eds. 1992. *Creole New Orleans: Race and Americanization*. Baton Rouge: Louisiana State University Press.

Ingold, Tim. 2000. *The Perception of the Environment: Essays on Livelihood, Dwelling, and Skill* New York: Routledge.

Jackson, Antoinette. 2011. “Diversifying the Dialogue Post-Katrina—Race, Place, and Displacement in New Orleans, U.S.A.” *Transforming Anthropology* 19 (1): 3–16.

Jansen, Kees. 1998. *Political Ecology, Mountain Agriculture, and Knowledge in Honduras*. Amsterdam: Thela.

Latour, Bruno. 1993. *We Have Never Been Modern*. Translated by Catherine Porter. Cambridge: Harvard University Press.

Litten, Kevin. (2018). “Entergy’s New Orleans East power plant gets final approval from council.” NOLA.com/The Times Picayune. Retrieved August 30, 2018 (https://www.nola.com/politics/index.ssf/2018/08/jeff_landry_transgender_people.html).

Maldonado, Julie Koppel, Christine Shearer, Robin Bronen, Kristina Peterson, and Heather Lazrus. 2013. “The Impact of Climate Change on Tribal Communities in the US: Displacement, Relocation, and Human Rights.” *Climate Change* 120 (3): 601–14.

Marchezini, Victor. 2015. “The Biopolitics of Disaster: Power, Discourses, and Practices.” *Human Organization* 74 (4): 362–71.

Marino, Elizabeth. 2015. *Fierce Climate, Sacred Ground*. Fairbanks: University of Alaska Press.

Marino, Elizabeth, and Heather Lazrus. 2015. “Migration or Forced Displacement? The Complex Choices of Climate Change and Disaster Migrants in Shishmaref, Alaska and Nanumea, Tuvalu.” *Human Organization* 74 (4): 341–50.

Maskrey, Andrew A, ed. 1993. *Los Desastres No Son Naturales*. Bogotá, Colomb.: La RED, Intermed. Technol. Dev. Group.

Nosse-Leirer, Emily Rose (2014). *Future Focused Planning? The role of environmentalism and sustainability in the redevelopment of post-Katrina New Orleans.* (Doctoral dissertation, The Ohio State University).

Obama, Barack. 2016. The Way Ahead. *The Economist.* Retrieved October 8, 2016 (https://www.economist.com/briefing/2016/10/08/the-way-ahead).

O’Keefe P, Westgate K, Wisner B. 1976. Taking the naturalness out of natural disasters *Nature* 260:566—67.

Oliver-Smith, Anthony. 1999. “What Is a Disaster? Anthropological Perspectives on a Persistent Question.” In *The Angry Earth: Disaster in Anthropological Perspective*, edited by Anthony Oliver-Smith and Susanna Hoffman, 18–34. New York: Routledge.

Pickering, Andrew. 2008. *The Mangle in Practice: Science, Society, and Becoming*. Durham: Duke University Press.

Putnam-Walkerly, Kris and Elizabeth Russell. 2016 "What the heck does 'equity' mean?" *Stanford Social Innovation Review.* Retrieved August 10, 2018 (https://ssir.org/articles/entry/what_the_heck_does_equity_mean).

Regis, Helen. 1999. "Second Lines, Minstresly, and the Contested Landscapes of New Orleans Afro-Creole Festivals." *Cultural Anthropology* 14 (4): 472–504.

Snyder, Mark. 2018. Disaster victim activists concerned about FEMA's fairness, transparency. *Houston Chronicle* Retrieved January 26, 2018 (https://www.houstonchronicle.com/news/houston-texas/houston/article/FEMA-grants-Harvey-victims-fairness-equity-12526374.php).

Stonich, Susan. 1993. *"I Am Destroying the Land!" The Political Ecology of Poverty and Environmental Destruction in Honduras.* Boulder: Westview Press.

Toledano, Roulhac, and Mary Louise Christovich, with Betsy Swanson, and Robin Von Breton Derbes. 1980. *New Orleans Architecture.* Vol. 6, *Faubourg Tremé and the Bayou Road: North Rampart Street to North Broad Street, Canal Street to St Bernard Avenue*. Gretna LA: Pelican Publishing.

UNISDR. 2015. "Making Development Sustainable: the Future of Disaster Risk Management." *Global Assessment Report on Disaster Risk Reduction.* Geneva, Switzerland: United Nations Office for Disaster Risk Reduction (UNISDR).

U.S. Census. 2016. United States Census Bureau Website. Accessed July 6, 2016. http://www.census.gov/search-results.html?q=Greensburg+city%2C+KS&page=1&stateGeo=none&searchtype=web.

U.S. EPA (2009). Synthesis of Adaptation Options for Coastal Areas. Washington, DC, U.S. Environmental Protection Agency, Climate Ready Estuaries Program. EPA 430-F-08-024, January 2009.

State of Louisiana Coastal Protection and Restoration Authority White Paper:

Environmental Review and Permitting Process Challenges for Louisiana's Coastal Program

Contents

Executive Summary

The State of Louisiana, acting through the Coastal Protection and Restoration Authority (CPRA), requests that the Administration expedite permitting for critical infrastructure projects that help restore Louisiana's coastal ecosystem. Many of the projects do not need federal funds, will soon be ready to begin construction, and will stem the loss of Louisiana's coastal wetlands – a loss that our Governor has declared to be an emergency situation threatening U.S. national interests in energy production, wetland protection, maritime commerce and other economic and ecological issue areas.

With significant funding already in place and unanimous state legislative approval, the restoration projects included in Louisiana's Coastal Master Plan provide an ideal platform for this Administration to demonstrate how improvements to the environmental review and permitting process can prevent well-intentioned environmental protection laws from delaying projects designed to restore ongoing environmental losses.

Louisiana is Facing a Coastal Crisis, and Time is of the Essence

The State of Louisiana loses an unprecedented amount of land to coastal erosion every year. Since the 1930's, Louisiana has lost approximately 2,000 square miles of land to coastal erosion, a loss that is continuing at the rate of a football field of coastline lost every hour. No other state is facing such dramatic coastal land loss.

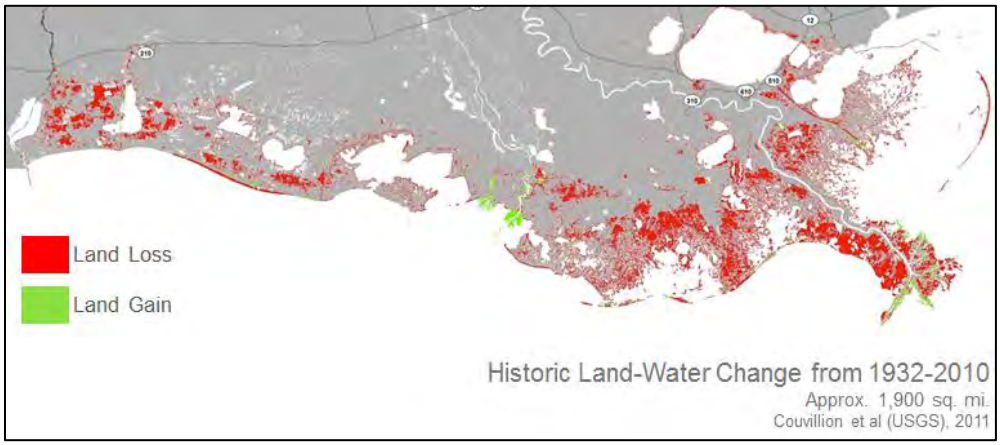
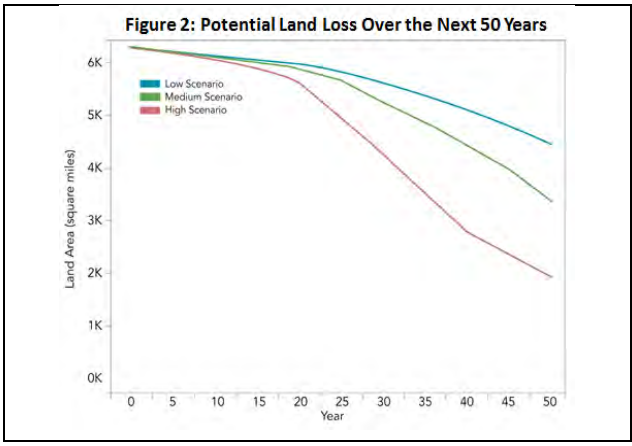


Figure 1: Historic Land-Water Change from 1932-2010.

The loss of Louisiana's coastal wetlands is a national crisis. The impacted area is home to half of the country's oil refineries and pipelines serving 90 percent of the nation's offshore energy production. Louisiana ships the most cargo in the nation along the Mississippi River and its waterways. Louisiana's wetlands today represent about 40 percent of the wetlands in the continental United States. Louisiana is also home to the most productive fisheries in the continental United States.

This land loss is ongoing and increasing. Without intervention, Louisiana's coastal estuaries will face collapse in the next 50 years, losing up to 4,000 additional square miles of wetlands. Likewise, this land loss will exacerbate flood damage, putting lives at risk and causing damage to billions of dollars of economic assets on an annual basis over the next 50 years.



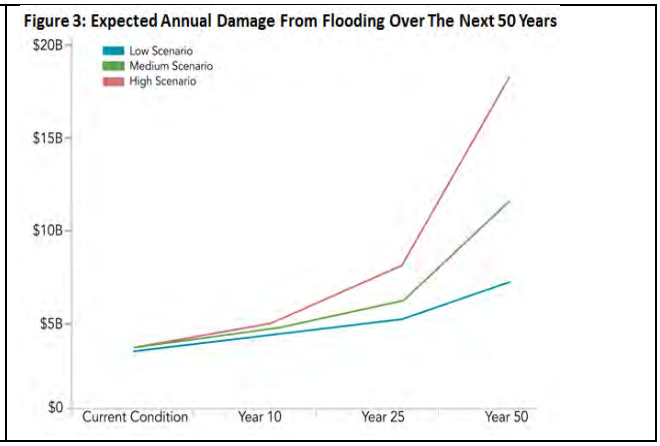


Figure 2 (Top Left): This graph shows the range of total land loss coastal Louisiana could experience over the next 50 years if we take no additional action.

Figure 3 (Top Right): This graph shows the range of direct economic damage from flooding coastal Louisiana could experience over the next 50 years if we take no additional action. Expected annual damage under initial conditions is ~$2.7 billion. In 50 years, coast wide expected annual damage could reach ~$6.7 billion under the Low Scenario, $12 billion under the Medium Scenario, and $19.9 billion under the High Scenario.

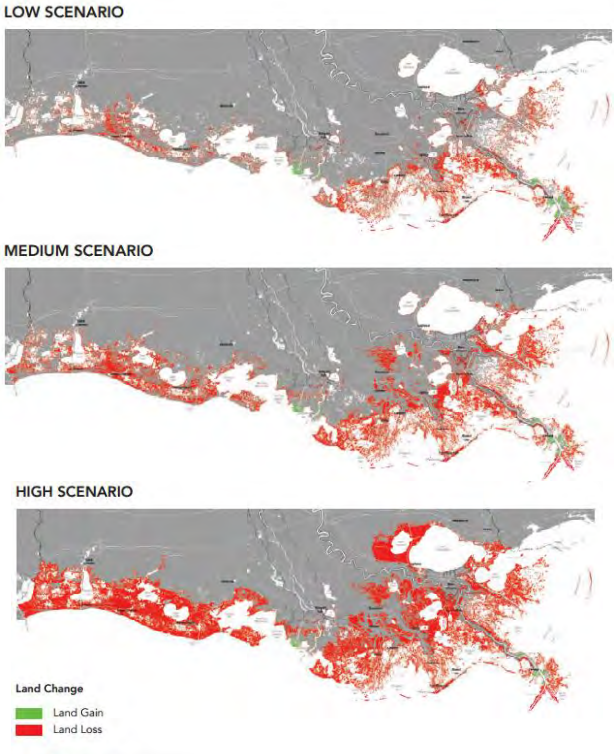


Figure 4: Shown above is land change 50 years from now under the Low, Medium, and High Environmental Scenarios if we take no additional action. Red indicates areas predicted to be lost, and green indicates areas where land would be created.

While there are many causes of this ongoing loss of coastal wetlands, two of the most significant are the construction of the Mississippi River levee system that began in the 1930's and the construction of canals through the wetlands to increase access for hydrocarbon exploration and commercial and recreational boat traffic. The massive Mississippi River levee system has virtually eliminated the introduction of river sediments to Louisiana's estuaries, instead discharging those sediments from the River mouth into the open water of the Gulf of Mexico. Canals have enabled salt water from the Gulf of Mexico to intrude into brackish and freshwater wetlands, resulting in the loss of the vegetation that helps to hold those marsh areas in place.

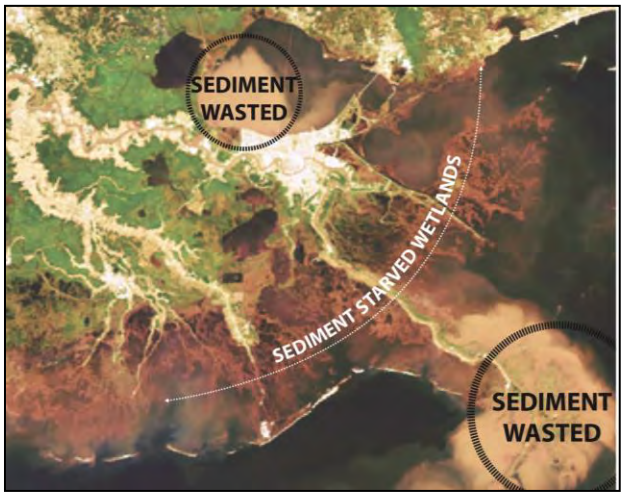


Figure 5: Satellite Photo of the 2011 Floods showing the sediment plume released from the Mississippi River into the Gulf of Mexico and Lake Pontchartrain rather than into the sediment-starved wetlands in Barataria Basin and Breton Sound.

Louisiana's Response: the Coastal Master Plan

Earlier this month, the Louisiana legislature unanimously approved Louisiana's 2017 Coastal Master Plan, the second revision of a 50 year, $50 billion plan to restore Louisiana's coast and protect the State against hurricane storm surge. Completion of the projects in the plan would add or maintain over 800 square miles of coastal land and wetlands, compared to a future where no projects are built. By 2067 the projects in the plan would reduce flood damage by $150 billion.

While not all of the projects in the plan are fully funded, we have secured approximately $11.4 billion for our Coastal Master Plan over the next 15 years. This includes the Gulf of Mexico Energy Security Act of 2006 (GOMESA), a funding steam we are relying on to support our coastal program going forward. In 2006, the people of Louisiana adopted a constitutional amendment that committed all revenues received by Louisiana from federal oil and gas development offshore to the restoration and protection of the Louisiana coast. None of these funding sources are federal tax funds or ratepayer funds.

The Challenge: The Federal Permitting Process

While Louisiana stands ready to commit significant funding to restoring its coastline, the federal permitting process for coastal restoration projects presents major delays in project implementation. The proposed Mid-Barataria Sediment Diversion provides a good example of this challenge.

The scientific community, various environmental organizations, and the citizens of Louisiana agree that the best approach to saving and restoring Louisiana's coastal wetlands is to reintroduce sediment-laden waters from the Mississippi River into Louisiana's sediment starved estuaries. The Mid-Barataria Sediment Diversion is intended to re-establish a connection between the Mississippi River and Barataria Basin, thereby restoring a river/estuarine connection that mimics historic land building processes in the Basin. Barataria Basin was the coastal area most heavily impacted by the *Deepwater Horizon* oil spill, a disaster that significantly exacerbated the already dramatic land loss in that region. The Mid-Barataria Sediment Diversion is a critical step toward sustainably restoring those lost wetlands and protecting tens of thousands of acres of land.

Louisiana is not seeking new funding to construct the Mid-Barataria Sediment Diversion. Rather, the State is working with numerous federal agencies toward using BP settlement funds to construct the diversion. However, even though we have the funding to move these projects forward, we nevertheless have serious concerns that the federal process will slow our projects down.

In January, the White House Federal Permitting Improvement Steering Council approved the Mid-Barataria Sediment Diversion for inclusion on the FAST-41 Dashboard. Louisiana believed that the inclusion of the Mid-Barataria Sediment Diversion on the FAST-41 Dashboard was a significant achievement that would significantly expedite the permitting timeline for the project. Indeed, the State is collaborating well with the federal permitting agencies in the regulatory process. However, the FAST-41 Dashboard Coordinated Project Plan ("CPP") timeline ultimately adopted shows the permits issuing on October 31, 2022, approximately one year longer than expected. During that additional time, critical wetlands will be lost in Barataria Basin, significantly increasing the restoration needs for the Basin. And this assumes that no other natural or man-made disaster intervenes to accelerate such loss. It is unreasonable, unwarranted, and unacceptable for the people of Louisiana to be subjected to a prolonged permitting process for a key state-approved restoration project, which does not use federal funds.

The Solution: Revising the Permitting Approach to Large Scale Restoration Projects

The State of Louisiana supports and values the federal environmental review and permitting processes. However, the State has also learned that certain aspects of those existing processes make it difficult in some cases to quickly obtain regulatory approvals. In practice, these various

regulatory schemes evaluate the impacts of restoration projects using the same approach as they do when evaluating private development projects. They evaluate the impacts against current conditions, focusing on short term impacts, rather than long-term benefits and historic ongoing damages. However, large-scale estuarine restoration projects, like those included in Louisiana's Coastal Master Plan, are precisely designed to change existing conditions, because existing conditions represent an ongoing degradation of the environment. Thus, regulators' focus on reducing short-term environmental impacts to maintain pre-project conditions is inconsistent with the very purpose of many of our coastal restoration efforts.

In addition, each federal agency has jurisdiction over different natural resources, requiring each agency to view a project through the lens of a different resource. This makes it difficult for the Federal Government, as a whole, to evaluate the beneficial impacts of a federal action on a large-scale ecosystem basis, rather than on the scale of individual, siloed natural resources.

Louisiana believes that these concerns can be addressed under the existing regulatory regime. Ideally, when a major ecosystem restoration project involving actions from multiple federal agencies is proposed, front-end coordination through centralized, executive-level leadership could be used to guide and direct the various agencies toward a comprehensive and focused goal of efficient analysis and, ultimately, implementation. However, that efficiency has proven elusive. Louisiana would therefore like to explore potential avenues for modifying the existing regime as it applies to large scale ecological restoration projects.

The State of Louisiana urges the Administration to use all of the tools within its authority to provide executive-level leadership to expedite permitting of Louisiana's critical coastal restoration projects, including issuing an order declaring a national emergency for the Louisiana coast. The State is open to any and all potential solutions, from enhanced collaboration and coordination under existing laws and regulations, to modifying executive agency statutory interpretations that present roadblocks to expedited permitting, to legislative changes to address these critical projects.

State of Louisiana Coastal Protection and Restoration Authority White Paper: Environmental Review and Permitting Process Challenges for Louisiana's Coastal Program

Introduction

As follow up to transmittal to the President of Emergency Proclamation No. 43 JBE 2017 issued by Governor John Bel Edwards on April 18, 2017, declaring a state of crisis and emergency in coastal Louisiana, the purpose of this White Paper is to raise awareness to the highest level of government of the significant challenges faced by the State of Louisiana in its efforts to expedite the implementation of five of our largest scale integrated coastal protection (ICP) infrastructure projects (Priority ICP projects). These Priority ICP projects include: Mid-Barataria Sediment Diversion, Mid-Breton Sediment Diversion, Houma Navigation Canal Lock Complex, Calcasieu Ship Channel Salinity Control Measures, and the River Reintroduction into Maurepas Swamp. (*See* Appendix A, Priority ICP project fact sheets). These projects have been subjected to rigorous scientific modeling and are located in areas of critical need across Louisiana's coast. While much of the needed funding has been identified, the environmental review and permitting process remains the last significant hurdle to implementing these projects in a timely manner.

The costs of any delay to the implementation of the Priority ICP projects are significant, both in terms of dollars and the protection these projects can provide to Louisiana's citizens, as well as the coastal industries and infrastructure on which the nation relies.[1] Louisiana could lose up to 4,000 square miles of coast if nothing is done[2]; meanwhile, the cost per acre to rebuild marsh more than doubles over 20 years.[3] Through flooding, hurricanes, and man-made disasters, our citizens continue to witness the disappearance of their property, livelihoods, well-being, and safety. Louisiana and the nation cannot afford to wait.

The State of Louisiana has been working diligently to address obstacles to the expeditious implementation of our Priority ICPs at the state and federal levels. Our biggest challenge has been the environmental review and permitting processes, which although based on strong policy,

[1] Louisiana's coast is home to more than 2.5 million people, or more than half of the state's total population. This fragile coastal ecosystem provides protection for infrastructure that services 90% of the Gulf's deepwater oil production, 20% of the nation's annual waterborne commerce, 26% (by weight) of the continental U.S. commercial fisheries landings, and winter habitat for five million migratory waterfowl. Louisiana, which has some of the highest rates of land loss in the world, has already lost at least 1,900 square miles of land over the past 80 years, and predictions show that if we do nothing, we stand to lose twice that amount of land over the next 50 years. Saltwater intrusion and reduced sediment flow from the Mississippi River and its tributaries are two of the primary causes for this land loss. Our Priority ICP projects are designed to specifically address these issues.

[2] In the lowest sea level rise scenario, the combined subsidence and sea level rise estimate is almost 1 ½ feet by 2067; the moderate scenario estimate is approximately 2 feet by 2067 and the high scenario is approximately 2.7 feet by 2067. *See* CPRA Coastal Master Plan at Appendix C, Ch. 4 pp. 137 & 143.

[3] For the lowest sea level rise scenario, the cost per acre to rebuild marsh increases more than 100%. For the medium scenario, the cost per acre created increases almost 200% in 20 years and more than 600% in 40 years at 2% inflation. *See* The Water Institute of the Gulf (2016). Future Costs of Marsh Creation Projects in Coastal Louisiana Summary of Methodology. Baton Rouge, LA.

are often implemented inefficiently resulting in significant delay, unpredictable decisions, and limited accountability. We need assistance to streamline these processes and find efficiencies that will allow the State to move ahead now to provide a safer and more resilient coast for our citizens and the nation. Stronger state and federal collaboration will ensure the continued success of Louisiana's coastal program and fully meet the goals of the nation's environmental policy.

Louisiana's Coastal Master Plan and Coastal Program

After the devastation of Hurricanes Katrina and Rita in 2005, the Federal Government agreed to focus attention and money on Louisiana's coastal crisis, provided that the state met certain requirements. Instead of dealing with a myriad of state agencies, the Federal Government required Louisiana to establish one central authority that would represent the state, speak with one clear voice for the future of Louisiana's coast, be accountable for oversight of all activities and funds relative to coastal restoration and hurricane protection, and develop a coordinated plan of action with clear goals and achievable objectives. Louisiana responded by creating the Coastal Protection and Restoration Authority (CPRA) and *Louisiana's Comprehensive Master Plan for a Sustainable Coast* (Coastal Master Plan). (*See* Appendix B, 2017 Coastal Master Plan).[4]

This model has served Louisiana well and has greatly streamlined our ability to work with the Federal Government. Most importantly, this model has generated our Coastal Master Plan, the State's 50-year, $50 billion plan to restore and protect our coast which is based on strong science and extensive public input. Nowhere in the nation is there a region that simultaneously offers globally critical habitat and the breadth of economic assets found in coastal Louisiana. Moreover, unlike other areas of the nation that will face similar challenges, we have freshwater and sediment from the Mississippi and Atchafalaya Rivers, which are essential tools in our toolkit that we can leverage in our fight against encroaching seas. We also have a comprehensive plan to implement these tools.

With our Coastal Master Plan, which is one of the biggest coastal restoration plans in the world, we can build or maintain more than 800 square miles of land[5] and reduce flood damage by $150 billion over the next 50 years. (*See* Appendix C for a map of what our Coastal Master Plan delivers). We have done a lot of the work ourselves, but we cannot implement our plan alone. To

[4] A comprehensive electronic version of the 2017 Coastal Master Plan, with appendices, is available *at* http://coastal.la.gov/our-plan/2017-coastal-master-plan/.

[5] Between 1932 and 2010, Louisiana's coast lost more than 1,800 square miles of land. *See* 2017 Coastal Master Plan Executive Summary, p. ES-2. From 2004 through 2008 alone, more than 300 square miles of marshland were lost to Hurricanes Katrina, Rita, Gustav, and Ike. *Id.* As explained in our Coastal Master Plan Brochure, "CPRA's goal is not, and has never been, to rebuild the coast of the 1930s or to maintain our current coastal footprint. We know that is not feasible. The 2017 Coastal Master Plan recommends a diversity of projects to build land and reduce flood risk in order to balance short-term needs with long-term goals. The reality is that this plan will not solve all the challenges facing coastal Louisiana. It will take an unprecedented effort by government, the private sector, and coastal communities to improve the sustainability of our coast. However, Louisiana's people are resilient, and we are up to the challenge." *See* 2017 Coastal Master Plan Brochure, p. 2, *available at* http://coastal.la.gov/wp-content/uploads/2016/08/2017-Draft-Master-Plan-Brochure-Final_For-Print.pdf.

accomplish our goals, we need the Federal Government as a partner to get our largest scale projects on the ground. We have the funds and the sediment, but need the Federal Government's help to ease the regulatory burden and shorten the permitting timeframes.

We have secured approximately $11.4 billion for our Coastal Master Plan for the next 15 years. This includes the Gulf of Mexico Energy Security Act of 2006 (GOMESA), a funding stream we are relying on to support our coastal program going forward. In 2006, the State of Louisiana passed a constitutional amendment to protect the GOMESA funds and ensure that they go towards integrated coastal restoration projects. This also includes more than $7 billion coming to us over the next 15 years for coastal projects as a result of the *Deepwater Horizon* oil spill settlement. Accordingly, we have largely secured the funds we need to implement our current list of Priority ICP projects.

We also have abundant sediment, the single most important resource needed to rebuild and maintain our wetlands. The Mississippi and Atchafalaya Rivers are key sediment sources, and we have developed methods to capture valuable sediment in sustainable and cost-effective ways. With funding secured and sediment available, our single biggest challenge to implementation of our largest scale projects is man-made – delays from complicated and inefficient environmental review and permitting processes.

The State of Louisiana continuously strives to expedite implementation of its Priority ICP projects at the state level by pursuing legislative updates to state law, implementing new forms of contracting, and maximizing funding for its coastal program. However, the identification and use of federal-level efficiencies is vital for Louisiana to "turn dirt" quickly. Moreover, the scale and amount of ecosystem restoration projects in the Gulf of Mexico region related to the *Deepwater Horizon* oil spill recovery effort over the next 5-15 years will put further strain on federal resources, potentially protracting the permitting and regulatory timeline of the Priority ICPs.

Assumptions and Alternatives within the Environmental and Regulatory Reviews

The environmental legal frameworks and processes within which the State and Federal Government must work to implement our Priority ICP projects have the capability to address complex ecosystem restoration projects with large-scale geographic benefits. For instance, the overall flexibility of the frameworks should make it easier to accomplish the objectives of environmental review and permitting in a timely manner; however, this has proven to be a challenging proposition in practice. Therefore, while we certainly support and value the environmental review and permitting processes, we also appreciate that there are certain aspects of the existing frameworks that make it difficult for our federal partners to maximize efficiencies in some cases.

First, the existing legal frameworks treat environmental restoration projects in much the same manner as industrial development projects. Although Louisiana needs both, there is obvious merit to expediting the review processes and simplifying the review criteria for restoration projects. In fact, the current system has at times made it *easier* to permit those projects that may create adverse environmental consequences than those that restore the damaged environment.[6]

Second, large complex restoration projects often involve numerous federal agencies with divergent missions. Each agency evaluates the restoration project through its particular lens. Consequently, this makes it difficult for the Federal Government to recognize and evaluate the beneficial impacts of restoration projects on a large-scale ecosystem basis. These issues are particularly apparent in the National Environmental Policy Act (NEPA) process. Under NEPA's implementing regulations, the purpose of an Environmental Impact Statement (EIS) is to inform decision makers and the public about the environmental effects of a proposed project and reasonable alternatives that would "avoid or minimize adverse impacts or enhance the quality of the human environment."[7]

The NEPA process supports the laudable goal of ensuring that the environmental impacts of Federal actions are fully taken into account. One mismatch between the standard NEPA process and restoration projects, however, concerns the environmental baseline. The NEPA implementing regulations start from the premise that current conditions are the appropriate baseline against which to evaluate a project's environmental impacts. In the case of Louisiana's ecosystem restoration efforts, our baseline conditions are dynamic and change on a daily basis. More importantly, our goal is to improve and restore conditions as compared to current conditions. Our Priority ICPs are specifically designed to restore environmental conditions over the long-term by restoring natural processes. Therefore, to the extent NEPA is interpreted by regulators to focus on the short-term maintenance of pre-project baseline conditions, this presents challenges to the very purpose of many of our coastal restoration efforts.[8]

Potential for Multiple Environmental Impact Statements

Given the number of different federal approvals that can be required for a single project, it is also possible for a project proponent to be faced with the daunting task of preparing multiple EISs for a single project. Although CPRA is working with all interested Federal agencies to avert this

[6] That was the case with *Deepwater Horizon*, which benefited from a NEPA categorical exclusion, while CPRA's proposed Mid-Barataria Sediment Diversion Project ("MBSD"), which is designed to restore for the damage caused by the oil spill, has the potential under the current system to become bogged down in years of environmental and regulatory review.

[7] *See* 40 C.F.R. § 1502.1.

[8] Given the language of NEPA and its implementing regulations that a detailed environmental statement should include information about "the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity", the statutory language of NEPA should be able to account for long-term environmental benefits. 42 U.S.C. § 4332(C); 40 C.F.R. § 1502.16. However, in practice, the agencies are often reluctant to fully take into account long-term environmental benefits or the damages being repaired.

outcome regarding the MBSD project, for nearly a year it appeared likely that the Army Corps of Engineers ("Corps") and the National Oceanic and Atmospheric Administration ("NOAA") could require separate EISs for the project, even though the adoption of one federal agency's EIS, or a portion of that EIS, by another federal agency is an efficiency provided by the White House Council on Environmental Quality's (CEQ) NEPA Regulations.[9] The potential of multiple EISs highlights the challenges of trying to implement large scale ecosystem restoration projects in a framework that was intended to protect the environment but is implemented in a way that *encourages but does not require* federal agencies, or even different bureaus within a federal agency, to fully coordinate with each other on environmental policy or to take a step back from their own particular areas of focus to look at the larger ecosystem that might be impacted by a given federal action.

Reconciling NEPA Alternatives and the Corps' 404(b)(1) alternatives analysis

We have also encountered confusion and delay surrounding the different alternative analyses processes mandated by NEPA on the one hand, and the Corps' 404(b)(1) alternatives requirements on the other. Section 1505.2(b) of NEPA's implementing regulations requires that, in cases where an EIS has been prepared, the Record of Decision identify all alternatives that were considered, "specifying the alternative or alternatives which were considered to be environmentally preferable." The environmentally preferable alternative usually means the alternative that causes the least damage to the biological and physical environment, but it can also be interpreted to mean the alternative which best protects, preserves, and enhances historic, cultural, and natural resources.[10] As such, NEPA does not prohibit federal agencies from selecting alternatives with adverse environmental impacts, provided that the EIS identifies potential mitigation for those impacts.

On the other hand, the Clean Water Act 404(b)(1) Guidelines require the Corps to determine practicable alternatives to a proposed action that would minimize adverse environmental effects on the aquatic ecosystem.[11] Importantly, the State could face an argument that ***only*** the Least Environmentally Damaging Practicable Alternative (LEDPA) can be permitted under the Clean Water Act, ***even if*** the NEPA alternatives analysis shows that an alternative with significant environmental impacts in comparison to the LEDPA is reasonable, feasible to implement and provides the most long-term ecosystem benefits.

CPRA is concerned that these different mandates could lead to divergent outcomes – one where the NEPA analysis might conclude that a large scale sediment diversion is the preferred alternative because of its overall environmental benefits, and another where a Corps LEDPA

[9] *See* 40 C.F.R. § 1507.3 and 40 C.F.R. § 1506.3.
[10] 46 Fed. Reg. 18026 (1981), Memorandum to Agencies: Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, No. 6a., *available at*: https://energy.gov/sites/prod/files/G-CEQ-40Questions.pdf; *see also* 40 C.F.R. § 1505.2(b).
[11] *See* 40 C.F.R. § 230.10(a).

analysis could view dredge-only projects as preferred. That outcome would be disastrous because dredging alone does not compare with large-scale sediment diversions in providing long-term benefits to the ecosystem and Louisiana's coastal communities achieved by reconnecting the natural process between the Mississippi River and the basin.

NEPA Categorical Exclusions

NEPA's implementing regulations also provide for categories of actions "which do not individually or cumulatively have a significant effect on the human environment" and which therefore are excluded from environmental analysis, meaning no Environmental Assessment (EA) or EIS is required.[12] The purpose of categorical exclusions is to expedite the environmental review process for proposals that normally do not require additional analysis and documentation in an EA or EIS. As CEQ has explained, "categorical exclusions are not exemptions or waivers of NEPA review; they are simply one type of NEPA review" that can help reduce unnecessary paperwork and delays.[13]

Categorical exclusions provide efficiencies within the NEPA framework and a way to somewhat tailor the framework so that activities can be exempted from further environmental review. Nevertheless, while particular categorical exclusions do exist for activities that restore or enhance the natural environment, the implementation of categorical exclusions is left to each individual federal agency, or even to different bureaus within one agency,[14] and there are no categorical exclusions that specifically relate to projects that provide long-term significant beneficial impacts on an ecosystem scale such as our Priority ICP projects. These disjointed and uncoordinated efforts can lead to absurd results where, for example, an industrial development project with a high likelihood of environmental harm may ultimately be granted a categorical exclusion by one agency bureau while the ecosystem restoration project needed to restore the very environmental harm created by that industrial development project could potentially be required to undergo multiple sets of environmental analyses, including formal consultation by a different bureau within the same federal agency. This is not an abstract, hypothetical notion. Indeed, this is exactly the scenario we face in the Gulf of Mexico.

On April 6, 2009, approximately one year before the *Deepwater Horizon* oil spill disaster, the Department of Interior (DOI) Minerals Management Service (MMS)[15] reviewed BP's

[12] *See* 40 C.F.R. § 1508.4.
[13] CEQ's Final Guidance for Federal Departments and Agencies on Establishing, Applying, and Revising Categorical Exclusions Under the National Environmental Policy Act, 75 Fed. Reg. 75628, 75631 (Dec. 6, 2010); 40 C.F.R. §§ 1500.4 & 1500.5.
[14] *See* 40 C.F.R. § 1507.3.
[15] Following the *Deepwater Horizon* oil spill disaster in 2010 DOI's MMS was reorganized and all operations except revenue collection activities were placed in the Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE). In fiscal year 2012 BOEMRE was divided into two bureaus – the Bureau of Ocean Energy Management (BOEM) and the Bureau of Safety and Environment Enforcement (BSEE).

exploration plan for the Macondo Prospect, the site of the *Deepwater Horizon* oil rig, a categorical exclusion exempting BP from undertaking a more rigorous EA or EIS on its drilling operations. This particular categorical exclusion, referenced in Section 15.4(C)(10) of DOI's Departmental Manual, is specific only to the central and western Gulf of Mexico and excludes "[a]pproval of an offshore lease or unit exploration development/production plan or a Development Operation Coordination Document" from environmental analysis.[16] This example illustrates a situation in which it is easier to permit a Federal activity with a possibility of significant negative environmental impacts versus a project with long term significant beneficial environmental impacts.

Given this, why should Federal agencies not also have categorical exclusions for projects like Louisiana's Priority ICP projects that are specifically designed to provide long-term significant beneficial impacts for the environment? Indeed, this example highlights the need to modernize the current use of categorical exclusions so that they can be applied in a logical and appropriate manner to ecosystem restoration projects.[17]

Federal Coordination and Accountability

In light of the hurdles that exist within the current environmental review framework and in an effort to move project implementation forward expeditiously, CPRA has been working to identify every opportunity to ensure that our projects are prioritized at the federal level. In October 2016, the Office of Management and Budget (OMB) and CEQ issued a memorandum to federal agencies titled "Federal Coordination, Permitting and Review of Gulf Coast Ecosystem Restoration Projects"[18], which stresses prioritization of Gulf ecosystem restoration and collaboration due to significant degradation by natural factors, such as Hurricane Katrina, and human-caused factors, such as the 2010 *Deepwater Horizon* oil spill. This joint OMB-CEQ memorandum also emphasizes cooperation among federal agencies and across restoration efforts through the formalization of the Gulf Coast Interagency Environmental Restoration Working Group (GCIERWG).

As a result of both the federal commitment to prioritizing Gulf ecosystem restoration and the State's concern about the time potentially required to move priority projects through the federal regulatory process, Governor Edwards submitted a request to include the state's Priority ICP

[16] DOI Departmental Manual, Part 516: National Environmental Policy Act of 1969, Ch. 15: Managing the NEPA Process – Minerals Management Service (Effective May 27, 2004), *available at* https://elips.doi.gov/ELIPS/DocView. aspx?id=1729.

[17] This is a particularly relevant point because the EIS process for one of CPRA's largest-scale oil spill restoration projects – the Mid-Barataria Sediment Diversion – will require formal consultation to occur under Section 7 of the Endangered Species Act with a different bureau (Fish and Wildlife Service) *within the same federal agency that issued the categorical exclusion to BP for its drilling operations associated with the Deepwater Horizon oil rig*. This situation underscores the need for not only interagency coordination, but also intra-agency coordination in order to expedite environmental review, as well as a need for the Federal Government to be able to consider environmental impacts on an ecosystem basis, rather than on the basis of specific sets of natural resources.

[18] *Available at* https://obamawhitehouse.archives.gov/sites/default/files/omb/memoranda/2017/m-17-01.pdf.

projects on the Federal Infrastructure Permitting Dashboard[19] (FAST-41 Dashboard). In January, the White House Federal Permitting Improvement Steering Council approved the Mid-Barataria Sediment Diversion for inclusion on the FAST-41 Dashboard. Then, in March, in response to President Trump's January 24, 2017 Executive Order 13755, "Expediting Environmental Reviews and Approvals for High Priority Infrastructure Projects", Governor Edwards submitted all five Priority ICP projects for inclusion on the President's priority infrastructure list.

The inclusion of the Mid-Barataria Sediment Diversion on the FAST-41 Dashboard is a significant achievement that has generated a publicly available regulatory and permitting process timeline for this project to which the Federal Government can be held accountable. However, while we now have a public commitment to a Section 10-404 timeline, this timeline is significantly longer than the State believes necessary.[20] Additionally, lengthy and seemingly over-estimated review times extend the permitting schedule dramatically. For example, the FAST-41 Dashboard Coordinated Project Plan timeline shows a 50-month timeframe for completion of the Final EIS, while CPRA has estimated the timeframe to be as short as 24-36 months. Given the strategies for realizing efficiencies by being listed on the FAST-41 Dashboard, the shorter timeframe would seem more practical and realistic.

Even in cases where we have been able to secure a publicly available regulatory and permitting timeline for a large scale integrated coastal protection project, as a practical matter there may exist various ways for this timeline to slip, few binding requirements on the relevant federal agencies to meet timelines, and a lack of strong incentives within the environmental review framework to engage in comprehensive front-end coordination. This problem is not unique to the MBSD, which is currently Louisiana's only Priority ICP project listed as a FAST-41 infrastructure project. The State fully anticipates facing the same hurdles with our other large scale ecosystem restoration projects, most notably the other four Priority ICP projects. Ideally, when a major ecosystem restoration project involving multiple federal agencies is proposed, front-end coordination through centralized, executive-level leadership would guide and direct the various agencies toward a comprehensive and focused goal of efficient analysis and, ultimately, implementation.

[19] On December 4, 2015, the Fixing America's Surface Transportation (FAST) Act was signed into law. Title 41 of the FAST Act (FAST-41) (42 U.S.C. § 4370m) was designed to improve the timeliness, predictability, and transparency of the Federal environmental review and authorization process for covered infrastructure projects.

[20] CEQ's NEPA regulations call for lead agencies to "[r]equest the participation of each cooperating agency in the NEPA process at the earliest possible time" and to "[i]ntegrate the requirements of NEPA with other planning and environmental review procedures required by law or by agency practice so that all such procedures run concurrently rather than consecutively." Despite this, the regulations do not provide any enforceable mechanism to require lead agencies to take these steps. 40 C.F.R. §§ 1501.6(a)(1) and 1500.2(c). Therefore there are often cases, such as with the Mid-Barataria Sediment Diversion, where concurrent reviews and full front-end coordination may not occur in practice.

Potential Organizational Avenues for Expediting Regulatory and Permitting Processes

There are also various organizational avenues through which the Federal Government could further streamline its regulatory and permitting processes and which would be well within the original intent of NEPA. As discussed earlier, post-2005, the State of Louisiana established CPRA as the single state entity with the authority to articulate a clear statement of priorities and to focus development and implementation efforts to achieve comprehensive coastal protection for Louisiana. This model has created efficiencies in terms of our ability to work with the Federal Government and to integrate coastal restoration and protection efforts into one agency that can address integrated coastal protection efforts at an ecosystem level. This framework has also streamlined the State's ability to implement our priority coastal projects more quickly, meaning that our coast is more resilient and our citizens are safer today than ever before.

Similarly, NEPA's Section 102 policy statement calls for an integrated and coordinated effort and provides that all agencies of the Federal Government shall "utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decisionmaking which may have an impact on man's environment".[21] Consequently, one way the Federal Government could seek to ensure that stated NEPA policy is fulfilled would be to streamline some of its own efforts and create a "one stop shop" for its regulatory and permitting efforts for large scale ecosystem restoration projects. This could be done either on a regional Gulf Coast basis, or even targeted to other coastal vulnerability hot spots such as the Outer Banks of North Carolina, Virginia Beach, the Jersey Shoreline, New York City, and Miami, that are facing some of the same issues as the Gulf Coast region.

If done on a regional scale, one option could be to use the Gulf Coast Ecosystem Restoration Council ("RESTORE Council")[22], which is an existing federal agency, as a platform for coordinating regulatory and permitting efforts relative to Gulf Coast restoration, or even more specifically for *Deepwater Horizon* oil spill restoration projects, including not only those funded with RESTORE dollars, but also Natural Resource Damage Assessment and National Fish and Wildlife Federation grant funds. Each of the relevant regulatory and permitting agencies, as well as the five Gulf Coast States are represented on the RESTORE Council, so the agency is well-positioned to serve in such a role. The RESTORE Council's 2016 Comprehensive Plan Update also contains numerous commitments to collaboration and coordination among its members, further underscoring the agency's unique position in the Federal Government to serve as a platform for meaningful regulatory and permitting reform. Additionally, the RESTORE Council

[21] *See* 42 U.S.C. § 4332(A).

[22] The RESTORE Council was created pursuant to the Resources and Ecosystems Sustainability, Tourist Opportunities, and Revived Economies (RESTORE) of the Gulf Coast States Act of 2012 as a result of the *Deepwater Horizon* oil spill.

is working with the Gulf Coast Interagency Environmental Restoration Work Group (GCIERWG) to identify regulatory efficiencies for Gulf Coast ecosystem restoration projects; however neither entity currently has the authority to require implementation of regulatory efficiencies.

Another option could be to set up a co-located team in the Gulf to work only on regional Gulf environmental restoration projects. This co-located team could be responsible for activities such as coordinating within and among regulatory agencies, resolving regulatory issues pertaining to proposed restoration projects, developing regulatory tools to expedite coastal restoration, and drafting and/or reviewing environmental compliance documentation. Members of the team would also need to be able to effectively represent their agencies with minimal oversight, and to quickly coordinate with their agencies to identify lead contacts for specific issues and receive management feedback and direction from their respective headquarters.

This concept of a co-located team is not without precedent. In 2005, the greater New Orleans area was in a state of emergency after Hurricane Katrina caused widespread flooding. In order to respond to this emergency, the Corps' New Orleans District designed a unique alternative arrangement in cooperation with CEQ to achieve NEPA compliance using an expedited process pursuant to 40 C.F.R. § 1506.11, so that the repair and rebuilding of levees could be completed as quickly as possible given the emergency conditions in New Orleans.[23] This included a co-located team hosted by the New Orleans District including staff from multiple relevant federal agencies to help advance coastal restoration and assist with other activities. This co-located team helped develop the Louisiana Coastal Area Ecosystem Restoration Plan and helped expedite the regulatory review of the post-Katrina upgrades of the Greater New Orleans Hurricane Storm Damage Risk Reduction System (HSDRRS).

In either case, the designation of a "parent organization" or a single federal entity/team to be ultimately responsible for streamlining the regulatory process for Gulf Coast ecosystem restoration projects would represent significant progress in terms of reducing federal bureaucracy while also emphasizing Gulf Coast ecosystem restoration as a national priority. This designation would also be entirely consistent with NEPA's original intent. Of course, regardless of whether this effort is undertaken on a regional or more national scale, in order to have the authority to implement meaningful federal change with respect to how environmental review and permitting processes are carried out, this entity or agency would need to be empowered to conduct certain

[23] Public Notice of Adoption of Alternative Arrangements under the National Environmental Policy Act for New Orleans Hurricane and Storm Damage Reduction System. 72 Fed. Reg. 11337 (March 13, 2007). *See also* U.S. Army Corps of Engineers New Orleans District "NEPA Compliance and Hurricane Rebuilding", available at http://www.mvn.usace.army.mil/Missions/Environmental/NEPA-Compliance-Rebuilding/; CEQ's Guidance on Emergencies and the National Environmental Policy Act (2016); and Memorandum from Nancy H. Sutley, Chair CEQ to Heads of Federal Departments and Agencies Regarding Emergencies and the National Environmental Policy Act (May 12, 2010) (discussing NEPA environmental review of actions proposed in response to an emergency situation, such as the ongoing Federal response to the oil spill in the Gulf of Mexico).

activities. For example, the entity should be empowered to: direct agencies facing multiple federal decisions on a particular project to use/adopt a single NEPA document as appropriate, require and incentivize agencies to complete as much permitting and consultation analyses as possible on the front-end, and work with CEQ to adapt the regulatory and permitting process to provide uniform NEPA guidance to federal agencies to ensure that ecosystem restoration projects with long-term beneficial environmental impacts are evaluated on the basis of their overall long-term impacts in a coordinated manner so that these projects can be implemented as quickly or more efficiently than industrial development projects with negative environmental impacts.

Louisiana's Efforts to Expedite Large Scale Integrated Coastal Protection Projects

The State of Louisiana has also been working diligently to identify ways it can act to expedite the implementation of its Priority ICP projects at the state level. In 2015 and 2016, CPRA spent some $30 million on engineering and design and $373 million on construction. Between 2017 and 2020, CPRA plans to spend an estimated $350 million on engineering and design and $2.8 billion on construction. While the vast majority of the *Deepwater Horizon* settlement funds will be paid out in installments over a 15 year period, the State of Louisiana is making every effort to cash flow the large scale projects so that they will be built sooner rather than later. Nonetheless, the regulatory challenges have the potential to eliminate the benefits of such efforts in expediting large scale restoration.

For example, CPRA is currently pursuing multiple ways to cash flow projects in advance of settlement payments. As one example, the Louisiana Legislature passed legislation on June 7, 2017 to authorize the use of outcome-based performance-based contracting. This is an alternative, full delivery model, under which the State would issue a single contract to deliver an ecosystem restoration or marsh creation project. Under this project delivery model, the State's contractor would be responsible for delivering all aspects of the project, including financing, acquisition of land rights and permits, engineering and design, construction, and monitoring and maintenance of the project. Unlike other more traditional project delivery models, including design build, payment for these contracts is based on successful performance of the completed project, through a series of performance objectives and criteria that must be successfully met in order for payments to be released to the contractor. Outcome-based performance contracting provides several benefits to the State, including opportunities for creative and innovative financing, better shared risks with the contractor since all parties are invested in a project's success, and better value in being able to deliver more projects faster, which has ecological as well as financial benefits for Louisiana's coast. Additionally, CPRA has been working to identify ways to leverage oil spill funding streams with other funding streams, such as GOMESA, to advance construction of our Priority ICP projects.

The State has also taken unprecedented steps to elevate our coastal crisis and the associated federal environmental review and permitting to the national stage. On April 18, 2017, Governor

Edwards issued Emergency Proclamation No. 43 JBE 2017, declaring a state of crisis and emergency in coastal Louisiana as defined by La. R.S. 49:214.2(4). This Emergency Declaration not only empowers Louisiana state agencies to expedite implementation of integrated coastal protection, but also requests the President and Congress to recognize the national significance of Louisiana's coast and to use all available means to expedite all federal permitting and environmental review, including creation of waivers, categorical exemptions, alternative measures or expedited processes, and assure cooperation and collaboration between federal, state, and local agencies and entities to clear regulatory hurdles. Governor Edwards' Emergency Declaration, in combination with a similar declaration by the President, would position the State well for the possibility of setting up an alternative arrangement for NEPA review, similar to what was done post-Katrina for the HSDRRS, to achieve NEPA compliance in an expedited process for Gulf Coast ecosystem restoration projects. Therefore, consideration of a Presidential declaration of an emergency for the Louisiana coast would be beneficial.

As discussed earlier, having the money and the projects today would mean key project savings over time and enhanced protection for our citizens sooner rather than later. This is an opportunity we cannot afford to miss.

Conclusion

Current environmental review and regulatory processes meant to protect the environment are delaying the State of Louisiana from implementing large-scale integrated coastal protection projects. Coastal Louisiana is in an existential crisis and needless delay is not an option. We must work to identify all available efficiencies so that project implementation can move forward expeditiously. If the laws and processes that are intended to protect the environment ultimately operate as tools to delay or prevent implementation of the State's coastal restoration and protection projects, the resources we are trying to protect and restore will soon disappear.

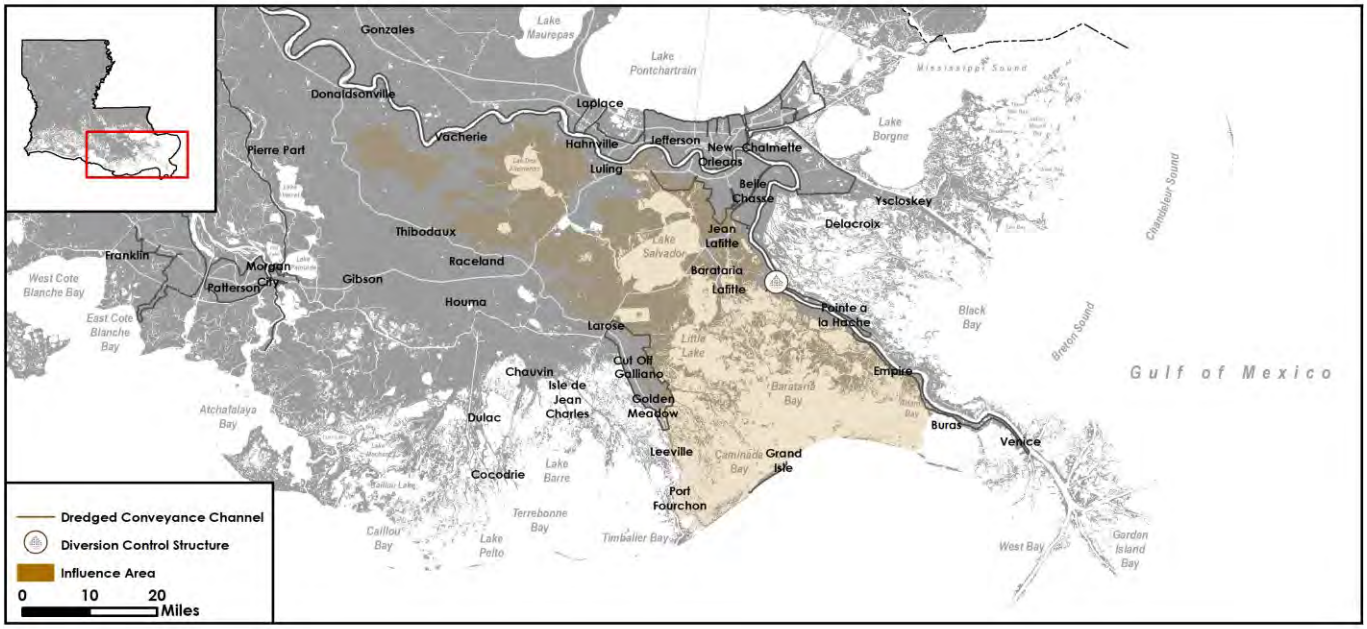
The State of Louisiana is committed to using every tool in its toolbox to ensure that its Priority ICP projects are implemented quickly and efficiently. The State anticipates that it will seek implementation of up to five complex coastal restoration projects over the next few years. If efficiencies are not identified and implemented immediately, the simultaneous submission of these projects on top of the Federal agencies' existing workloads will exceed existing federal resources. We believe there are a range of measures that could be taken at the Federal level, from process streamlining to Federal reorganization, that could simplify the environmental review and regulatory process and generate a more rational way to proceed with project implementation that would more fully accomplish the goals and objectives of this country's national environmental policy.

Appendix A: Priority ICP Project Fact Sheets

Mid-Barataria Diversion

Sediment Diversion

Project ID: 002.DI.102



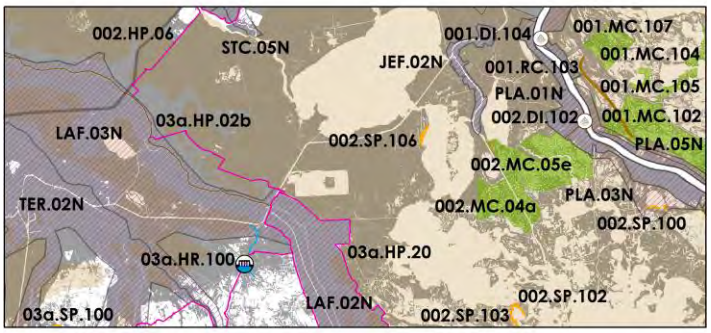
Description

Sediment diversion into Mid-Barataria near Myrtle Grove to build and maintain land, 75,000 cfs capacity (modeled at 5,000 cfs for Mississippi River flows below 200,000 cfs; variable flows to capacity between 200,000 and 1,250,000 cfs calculated using a linear function; diverts exactly 75,000 cfs when flows are at 1,250,000 cfs).

Project Cost Estimate

	Estimated Cost
Planning/Engineering & Design	$39,400,000
Construction	$821,400,000
Operations & Maintenance	$138,000,000
Total	**$998,800,000**

Other Nearby Projects in the Master Plan



Scale of Influence

Local | Sub-basin | Basin | **Regional**

Project Location

Plaquemines Parish

Project Duration

Planning, Engineering, and Design is estimated to take 5 years.
Construction is estimated to take 3 years.

Land Area Built or Maintained*

Near Term (Year 20)	8,041 acres
Long Term (Year 50)	29,686 acres

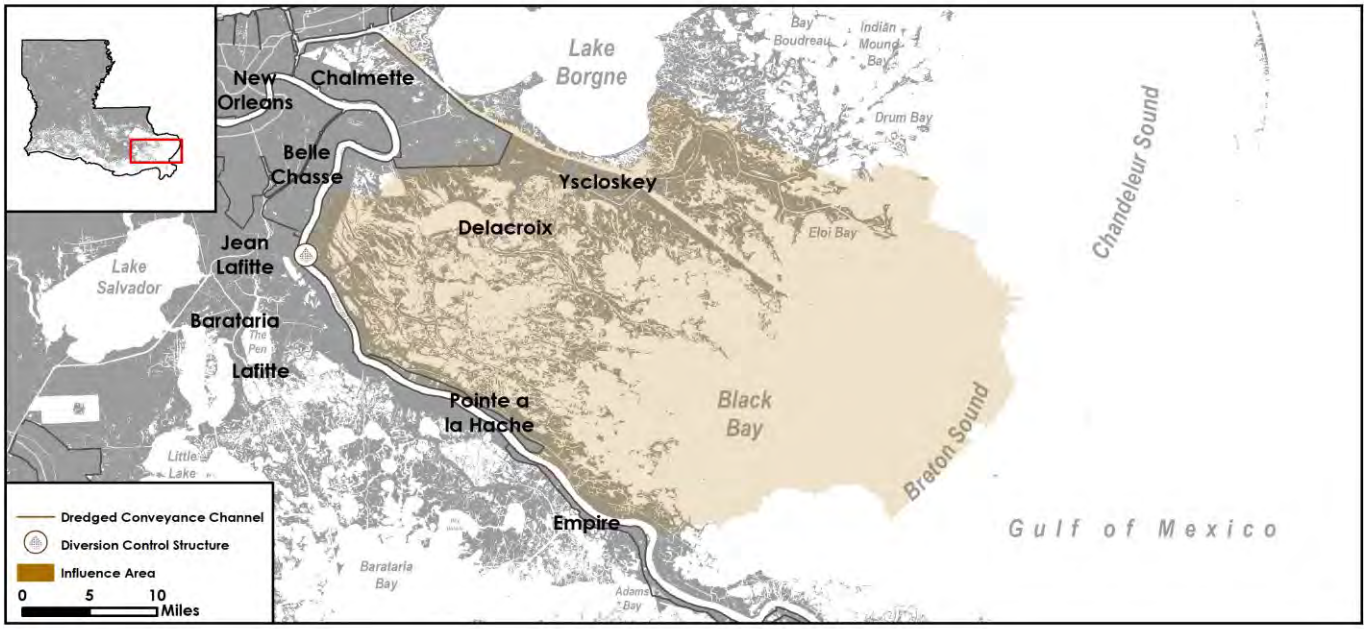
**Based on the most recent project-specific Delft-3D modeling analysis.*

2017 Coastal Master Plan
Implementation Period 1

Mid-Breton Sound Diversion

Sediment Diversion

Project ID: 001.DI.104



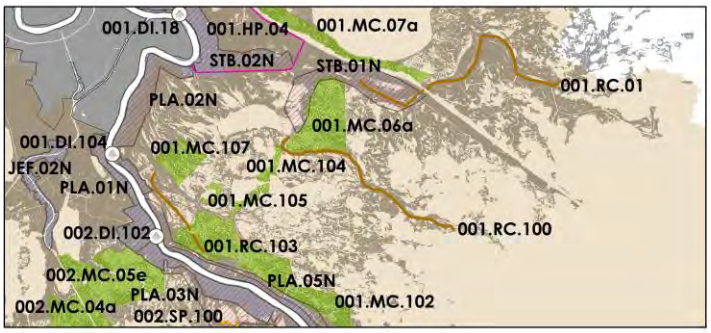
Description

Sediment diversion into Mid-Breton Sound in the vicinity of White's Ditch to build and maintain land, 35,000 cfs capacity (modeled at 35,000 cfs when the Mississippi River flow equals 1,000,000 cfs; flow rate calculated using a linear function for river flow from 200,000 cfs to 1,000,000 cfs; flows variable above 1,000,000 cfs; 5,000 cfs minimum flow maintained when Mississippi River flow is below 200,000 cfs).

Project Cost Estimate

	Estimated Cost
Planning/Engineering & Design	$30,500,000
Construction	$381,400,000
Operations & Maintenance	$67,100,000
Total	**$479,000,000**

Other Nearby Projects in the Master Plan



Scale of Influence

Local | Sub-basin | **Basin** | Regional

Project Location

Plaquemines Parish

Project Duration

Planning, Engineering, and Design is estimated to take 4 years.
Construction is estimated to take 2 years.

Land Area Built or Maintained*

Near Term (Year 20)	5,066 acres
Long Term (Year 50)	15,831 acres

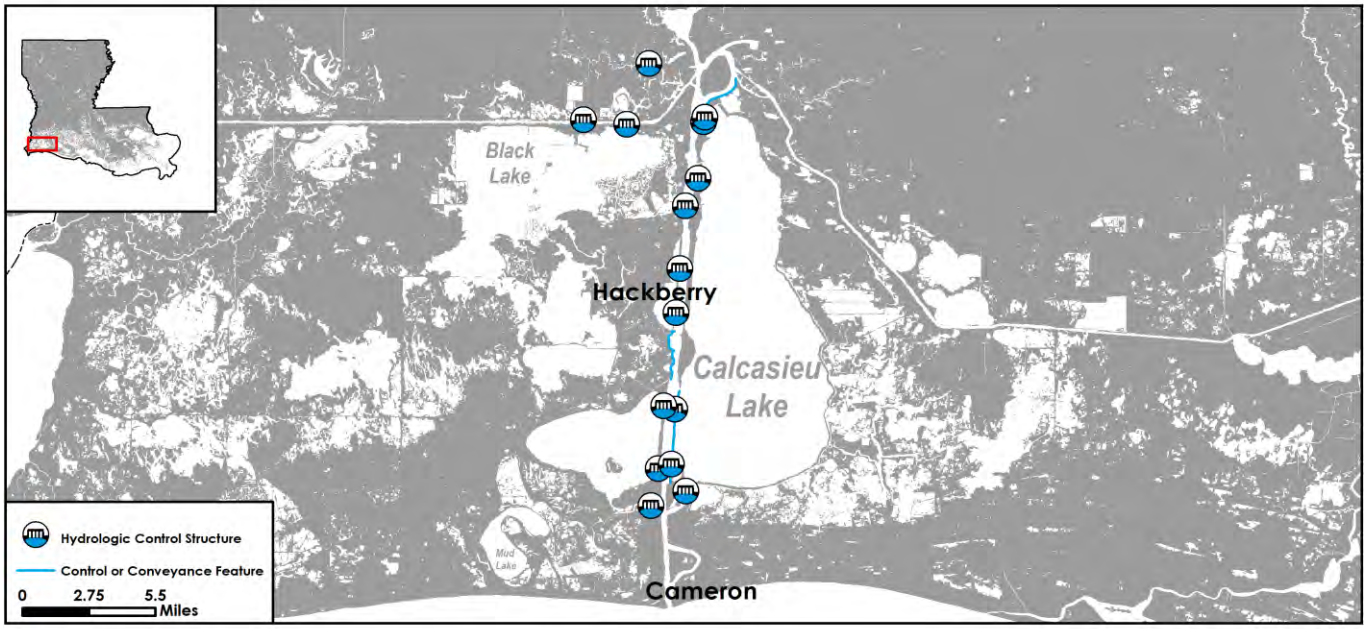
**Based on the most recent project-specific Delft-3D modeling analysis.*

2017 Coastal Master Plan
Implementation Period 1

Calcasieu Ship Channel Salinity Control Measures

Hydrologic Restoration

Project ID: 004.HR.06



Description

Construction of sill and wall structures in West Pass, East Pass, Lake Wall, Long Point Lake, Nine Mile Cut, Dugas Cut 1, Dugas Cut 2, Texaco Cut, Turner's Bay, Salt Ditch, Drainage Canal, and Choupique Bayou to prevent saltwater intrusion into the Calcasieu Ship Channel.

Scale of Influence

Local | Sub-basin | Basin | **Regional**

Project Location

Calcasieu Parish; Cameron Parish

Project Duration

Planning, Engineering, and Design is estimated to take 2 years.
Construction is estimated to take 1 year.

Project Cost Estimate

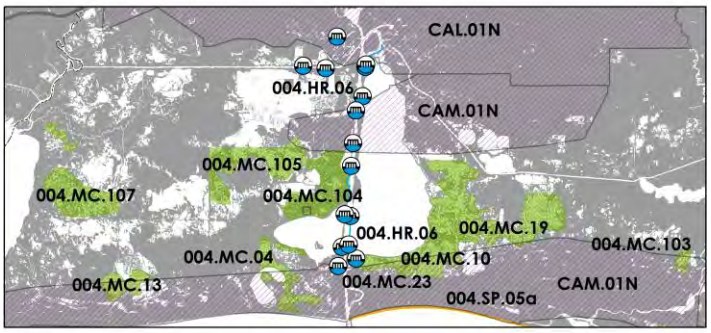
	Estimated Cost
Planning/Engineering & Design	$18,800,000
Construction	$234,700,000
Operations & Maintenance	$8,800,000
Total	**$262,300,000**

Land Area Built or Maintained*

Near Term (Year 20)	-1,458 acres
Long Term (Year 50)	12,685 acres

**Based on the most recent project-specific modeling analysis.*

Other Nearby Projects in the Master Plan

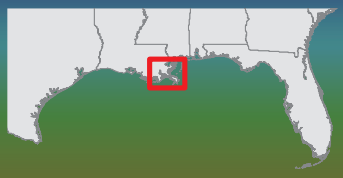


2017 Coastal Master Plan
Implementation Period 1

Gulf Coast Ecosystem Restoration Council

Mississippi River Delta Watershed

Mississippi River Reintroduction into the Maurepas Swamp
(LA_RESTORE_005_000_Cat1)



Project Name: Mississippi River Reintroduction into Maurepas Swamp - Planning
Cost: Category 1: $14,190,000
Responsible Council Member: State of Louisiana

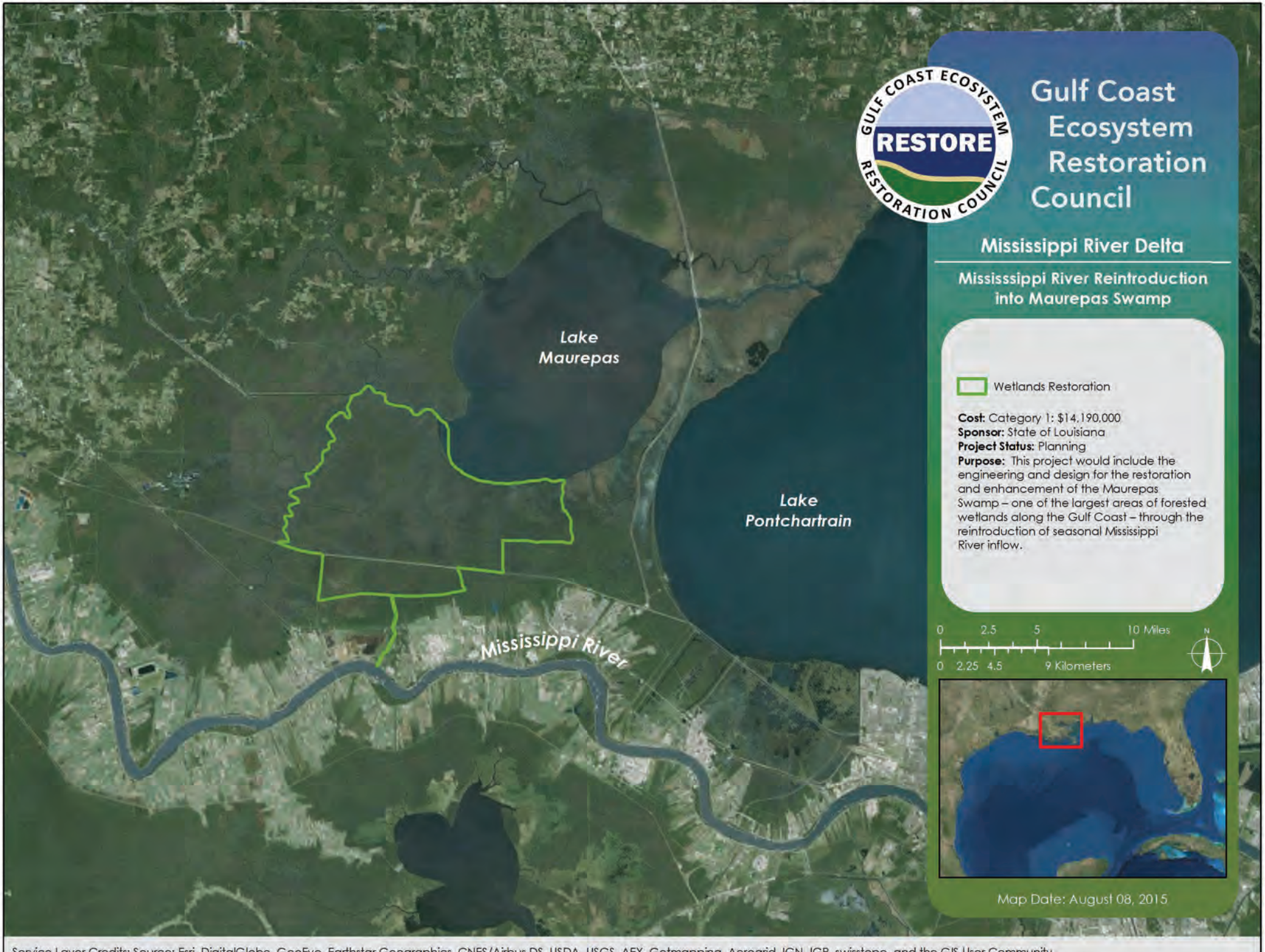
Project Details: The Maurepas Swamp is one of the largest areas of forested wetlands along the Gulf Coast, encompassing approximately 57,000 hectares (approximately 140,850 acres) of bald cypress-tupelo swamp west of Lake Pontchartrain. Historically, the swamp received sediment and nutrient inputs from the Mississippi River during seasonal overbank flooding; however, reduced freshwater inflow and sediment input has caused land loss within the sub-basin and resulted in the periodic introduction of brackish water from Lake Pontchartrain into Lake Maurepas and the swamp.

Activities: The project would include engineering and design of the Mississippi River Reintroduction into Maurepas Swamp project, leading to construction-ready plans and specifications and the development of an adaptive management plan to guide decision-making for future project maintenance activities. If implemented in the future, the project would consist of the following major components designed to divert fresh water from the river into the Maurepas Swamp: a gated river intake structure; a box culvert through the levee; a sedimentation basin; a conveyance channel; and a drainage pump station. The maximum design flow is 2,000 cubic feet per second.

Environmental Benefits: If implemented in the future, in addition to restoring and enhancing a total of 18,300 hectares (approximately 45,220 acres) of forested wetland, the project would provide a host of other benefits to wildlife that are dependent on cypress-tupelo swamps. Increased primary productivity and water quality would increase food resources and subsequently increase secondary productivity of freshwater fish. Wading birds, migratory birds, bald eagles, alligators and other wildlife species would also benefit. The project could maintain stands of mature bald cypress and other woody vegetation, which would ensure that suitable nesting areas are available for numerous bird species. Bald eagles, for example, predominantly use bald cypress when nesting in Louisiana, and the Maurepas Swamp supports a large number of nests.

Duration: The timeline for this planning project is estimated to be three years for permitting and land rights. If implemented in the future, project construction would take four years.

More information on this activity can be found in Appendix D. Mississippi River Delta; Unique Identifier: LA_RESTORE_005_000_Cat1.



Gulf Coast Ecosystem Restoration Council

Mississippi River Delta

Mississsippi River Reintroduction into Maurepas Swamp

Wetlands Restoration

Cost: Category 1: $14,190,000
Sponsor: State of Louisiana
Project Status: Planning
Purpose: This project would include the engineering and design for the restoration and enhancement of the Maurepas Swamp – one of the largest areas of forested wetlands along the Gulf Coast – through the reintroduction of seasonal Mississippi River inflow.

0 2.5 5 10 Miles
0 2.25 4.5 9 Kilometers

N

Map Date: August 08, 2015

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

HOUMA NAVIGATION CANAL LOCK COMPLEX

Purpose

The Houma Navigation Canal Lock Complex is a hydrologic project that will provide several critical purposes in the Terrebonne Basin:

- One purpose of the project is to reduce salt water intrusion and distribute freshwater within the Terrebonne Basin.
- The project will also provide storm surge protection as a part of the Morganza to Gulf system.
- The structure will consist of a lock for everyday traffic and a wider flood gate for larger vessels as needed. The flood gate will have the ability to be opened or closed as needed to maximize freshwater distribution within the basin.

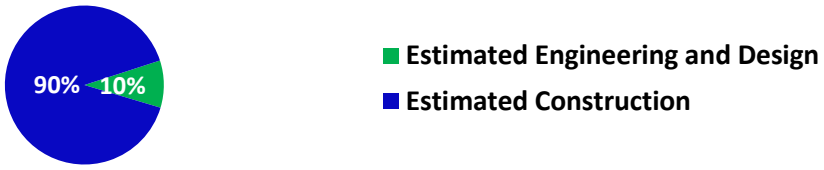
Ecosystem Outcomes and Economic Impacts

- The Terrebonne Basin is experiencing one of the highest rates of land loss in coastal Louisiana. By working synergistically with the TE-110 project this project will help to restore and protect this fragile ecosystem.
- This project will help to restore historic salinity regimes in the mid-Terrebonne basin.
- Operations to control freshwater distribution will be a key part of the project for the Increase Atchafalaya Flow to Terrebonne (TE-110) project.
- The structure is a part of the Morganza to the Gulf of Mexico (TE-64) hurricane protection system.
- Construction and Operation of the structure will be key to the success of the project purposes.

Costs[1]

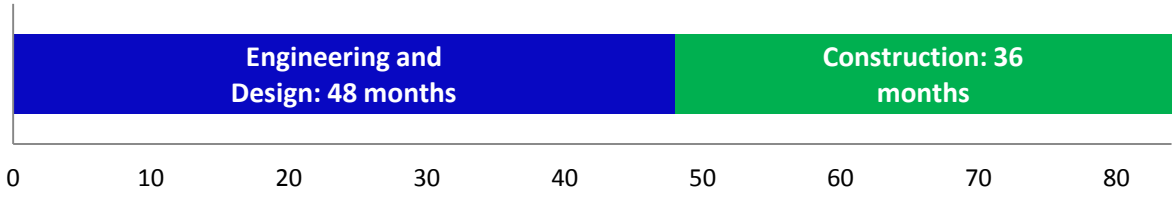
- Estimated Engineering and Design: $34 million
- Estimated Construction[2]: $350 million

1. estimate based off of alternative 3 from URS Optimization Study
2. construction costs do not include construction admin and inspection

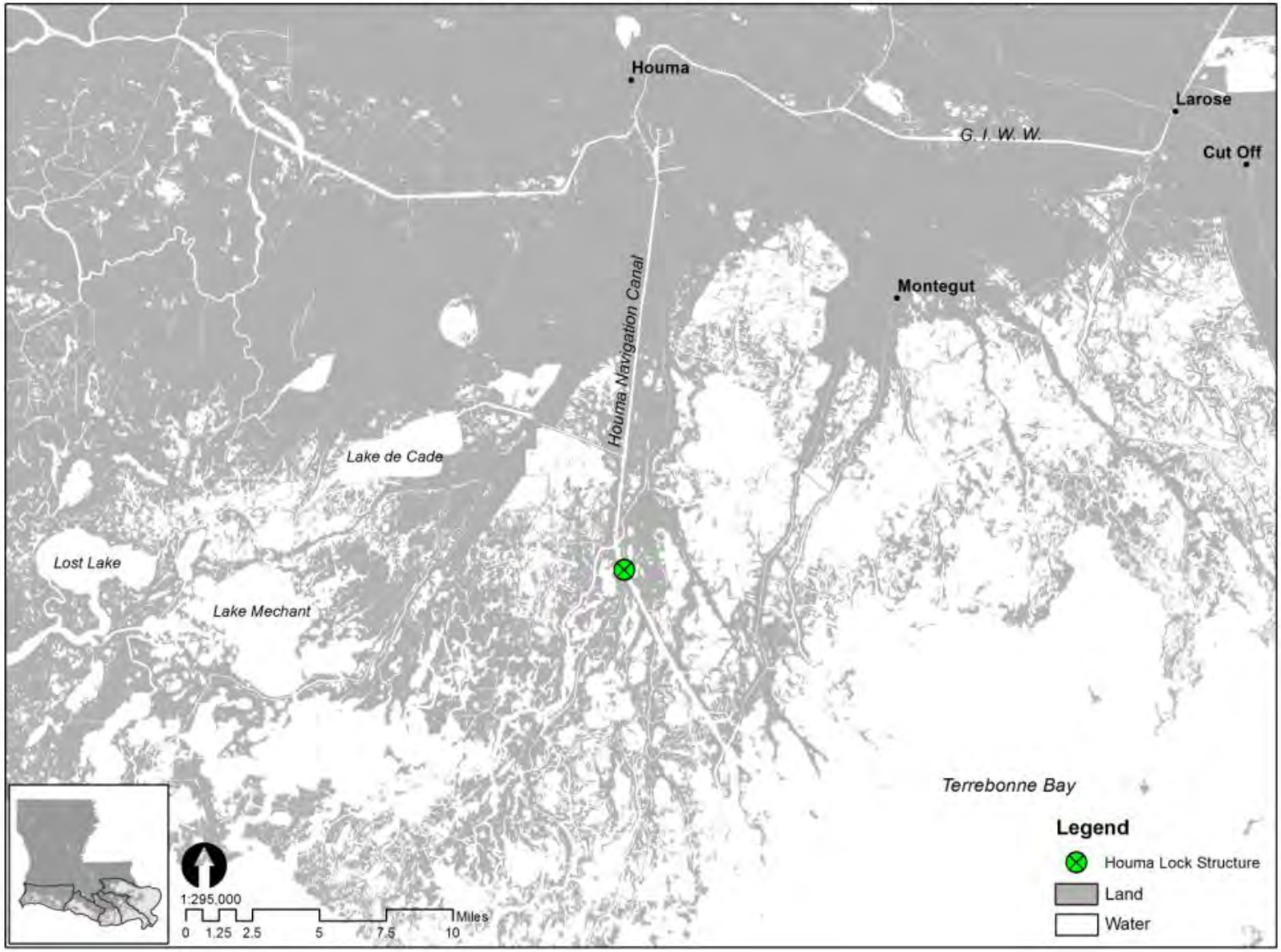


Implementation Timeline

Engineering and Design: Spring 2016 through spring 2019
Construction: Winter 2019 through winter 2022



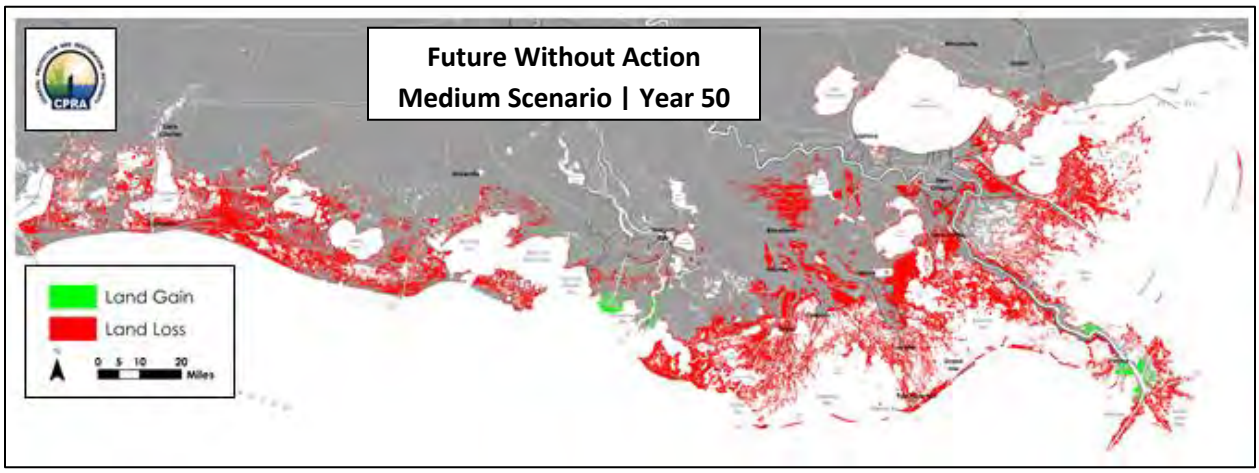
Houma Navigation Canal Lock Complex

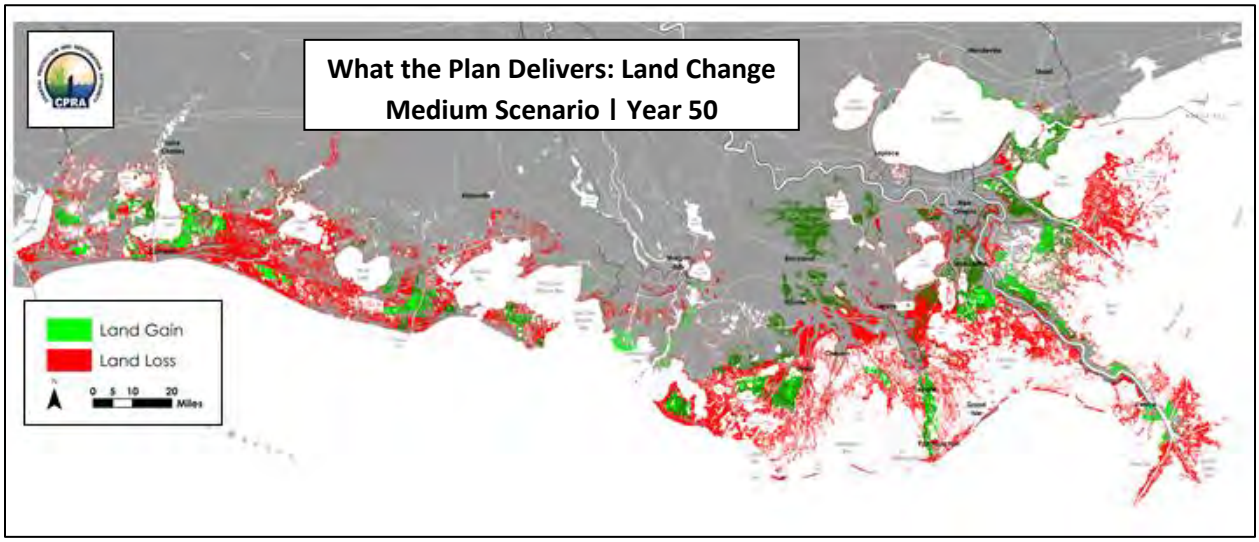


Appendix B: 2017 Coastal Master Plan

Appendix C: Coastal Master Plan Results Maps

Below is a map of what Louisiana's Coastal Master Plan delivers:





Stanford SOCIAL INNOVATION Review

Features

Creating Breakout Innovation

By Joanna Levitt Cea & Jess Rimington

Stanford Social Innovation Review
Summer 2017

Nonprofits, community groups, and philanthropists are embracing cocreation as a way to engage a wider community in tackling pressing problems. But only a small percentage of these efforts are resulting in bold innovation and powerful solutions. What does it take to deliver breakout innovation?

Creating BREAKOUT Innovation

BY JOANNA LEVITT CEA & JESS RIMINGTON

Illustration by MATTHEW RICHARDSON

Over the last decade there has been an explosion of interest in collaboration, open innovation, and crowd engagement. Many companies are moving away from a model in which products and services are created through a closed, top-down, expert-biased process and toward open, crowdsourced, user-driven strategies. Nonprofits, philanthropists, and community groups are also embracing cocreation as a response to the challenge of tackling pressing problems in an increasingly complex world.

And yet, while the language of cocreation is *en vogue*, relatively few organizations are applying cocreative strategies to innovate boldly. We celebrate the solutions resulting from design competitions and open innovation processes, yet few of the results lead to systems change or profoundly shake up what is considered possible. Despite all the rhetoric of cocreation as an important tool for innovation, it appears that the majority of such efforts are doing little to challenge the basic structures of problem solving. Meanwhile, our world cries out for designs that reimagine the way we do pretty much everything if we are to solve pressing problems like climate change, extreme inequality, and poverty.

After a two-year interdisciplinary research study exploring cocreative design processes in the nonprofit and for-profit sectors, we have concluded that only a small percentage of cocreation efforts are actually creating systems-changing solutions aligned with the stated needs and priorities of the participants, let alone with the possibilities for innovation that such approaches offer. We were left wondering why the majority of cocreation endeavors fall short of their promise and potential, so we set out to find an answer.

We scoured the fields of urban planning, organizational design, education, public health, and high-tech, among others, to find examples of designs that cast a wide net in terms of who was doing the decision making in the cocreative practice. We were curious whether cocreation that involved more and different voices in creative and decision-making processes might also break the mold of what outcomes are currently deemed plausible. In other words, were such efforts blowing the top off the status quo of innovation? The answer turned out to be "yes."

IDENTIFYING BREAKOUT INNOVATION

In our research, we found instances across a variety of fields where groups intentionally changed the "who" of creative decision making in cocreation efforts and then generated results that outperformed status-quo in their field. We call this phenomenon *breakout innovation*. Here are two examples:

In New Orleans in 2005, in the wake of Hurricane Katrina, traditional planning approaches were failing to turn the various recovery plans into a single, unified framework that residents could agree on in order for federal recovery dollars to be released. A local architecture and planning firm led an alternative process. The firm, Concordia, directly engaged more than 9,000 New Orleans residents as researchers, designers, and ultimately decision makers about which designs would be implemented and how. The resulting Unified New Orleans Plan—created in only seven months—was enthusiastically embraced as the official recovery framework and played a crucial role in enabling the revitalization that New Orleans has achieved over the past decade.

In 2013, the cardiology department at the University of California, San Francisco, launched the Health eHeart Study. Leaders of the study decided to employ an approach that was a radical departure from traditional heart disease research, partnering with several advocacy organizations[1] to create a "patient-powered research network" that enabled heart disease patients to collaborate with fellow patients as well as researchers, doctors, and other health providers. This Health eHeart Alliance led to an explosion of compelling questions, many of which have resulted in fully funded research efforts that are generating findings with unusually high relevance for improving patients' quality of life.

Each of these cases is an example of breakout innovation. We define actors of breakout innovation as groups that do the following:

- Create designs powerfully aligned with the needs and possibilities of the system they are addressing.
- Deliver solutions that make a rapid leap from concept to real-world implementation and wide uptake.
- Generate a shift in power dynamics that activates more innovators within their system, permanently changing the dynamics so that a far greater number of actors now play creative leadership roles.

A consistent hallmark of this work is that its impact carries far beyond the actual plan, product, or program it created. The process itself transforms the people and systems involved and expands their creative capacity for future innovation.

We found that actors delivering such breakout results cocreated in ways that represent a significant rupture from mainstream practice within their field. In fact, we were surprised to find that many of the big names in cocreation—including those speaking the loudest about seemingly cutting-edge practices like "collective impact," "crowdsourcing," and "design thinking"—were not actually significantly departing from the status quo, particularly when it came to generating a shift in power, voice, and ownership. Instead, breakout actors tend to be on the fringes of their fields. From a systems theory perspective, this makes sense. Writer David Bollier argues that those at the edges can innovate without the constraints or judgment of existing systems, and that systems change in fact can only begin on the fringes.[2]

What can we learn from actors at the edges who are leading the way in innovation through cocreation? We begin to answer this question in the sections that follow.

JOANNA LEVITT CEA is a visiting scholar at the Stanford Global Projects Center. She is also the director of the Buen Vivir Fund at Thousand Currents (formerly IDEX), a public foundation investing in grassroots solutions around the world.

JESS RIMINGTON is a visiting scholar at the Stanford Global Projects Center. She is also managing director of /The Rules, a global collective addressing the root causes of inequality and poverty.

THE FIVE PRACTICES OF BREAKOUT INNOVATION

Our research began by examining more than 70 organizations involved or interested in cocreation processes. From that, we formed a co-learning group of 20 organizations that were directly engaged in work that we identified as breakout innovation.[3] These 20 actors included for-profit companies, nonprofit organizations, social enterprises, philanthropic foundations, impact investors, grassroots community organizations, and social movements.[4]

We worked with the co-learning group to identify specific practices associated with breakout innovation that are central to each organization's way of work. We identified five practices that were strikingly consistent across the broad diversity of fields in the group. We believe that these five practices of breakout innovation offer a way for organizations to step beyond the self-imposed limits of business as usual—or even innovation as usual—to unleash the profound breakthroughs needed to tackle pressing social problems.

We should note that these practices are not binary characteristics that a process either does or does not have. The 20 organizations we worked with emphasize that each of these practices is about continually striving to strike the right balance.

Practice 1: Share Power | While many crowdsourcing, open innovation, and consultation processes ask stakeholders to provide input, relatively few share power. Sharing power means distributing the functions of decision making, creation, implementation, and evaluation among the process participants, and dissolving once-rigid divides between designer and consumer, expert and beneficiary.

Decades of participatory action research reveal that insights can be dramatically deepened when power is shared so that participants are not merely inquiry subjects but also are engaged as researchers, analysts, and decision makers.[5] New research on cocreation in the consumer technology industry affirms this dynamic. Companies that are opening up traditionally internal processes by inviting consumers to design a new logo or submit ideas for new models are the ones growing and capturing market share most rapidly.[6]

We also are learning from biomimicry studies that when power is

concentrated in a natural system, the system becomes far less resilient and more vulnerable.[7] And recent anthropological evidence suggests that early human societies may have regularly shifted roles and hierarchies as a way to continually bring in new perspectives essential to wise decision making and prevent ossification of social structures.[8]

A lack of shared power is easy to find in many of today's innovation processes. An excess of shared power is not as common, but it is nonetheless a real risk. Full-fledged experiments in consensus have gone wrong when organizations interpret power sharing to mean a free-for-all in which everyone has equal say. Without thoughtfully designed roles and processes, sharing power can lead to confusion, delays, and even injustice, as those most impacted by a decision may not have commensurate say to influence it.

A balanced approach to sharing power is exemplified by the work of breakout actor Incourage, a community foundation in Wisconsin Rapids, Wis. For decades the town's economy was based on Consolidated Papers, but when the company was sold in 2000, the community lost nearly 40 percent of its jobs, and median household income plummeted, along with morale. Incourage purchased the former *Daily Tribune* newspaper headquarters and proposed that residents decide its future use. "We made a commitment to resident ownership and resident power in the design process—and also in the future of the building," says Incourage staff member Kristi Anderson.

By 2012, more than 2,000 people had joined the design process, actively shaping and deciding what the *Tribune* building would become. The two-year design phase included outreach to different segments of the community; monthly meetings where residents worked in small groups facilitated by volunteer moderators who were residents themselves; meticulous compilation and sharing of ideas generated at each monthly meeting; and decision-making processes that used a blend of numerical weighting and voting to prioritize proposed ideas, along with small-group reflection and consensus-building.

The plan that emerged was for the *Tribune* building to serve as a community accelerator—to stimulate opportunity, environmental sustainability, and connections for community benefit. But even more important than the building was the transformation and sense of leadership built within the community through the design and decision-making process.

Here are five ways to share power:

- Define the problem at hand with the others involved.
- Trust all players with full information about the big picture of the project and the constraints.
- Support authentic leadership roles and structures for participants, with possibilities to play multiple roles.
- Create an environment that incentivizes decentralization of creative input.
- Share ownership, including co-ownership models that share returns.

Practice 2: Prioritize Relationships | Relationships are an organization's greatest asset, both for immediate work and for the challenges that may arise in the future. A key to building and sustaining strong relationships is to establish a "fair deal"—which we reconceptualize as a "co-commitment." Research on crowdsourcing shows that one of the most salient factors motivating people to take part in a process is whether or not participants consider the process fair.[9] Important considerations include how decisions will be made, what will happen with the input that participants provide, what access participants will have to the final product, and what ground rules everyone will follow. Breakout actors revealed the centrality of having a common set of values, commitments, and expectations as a bedrock of their cocreative initiatives.

When a co-commitment is shaped with the participants at the outset, it is a powerful touchstone people can return to throughout the process, helping to keep the process on track. In this way, a co-commitment can be the glue that holds together an emergent community forming around an innovation process.

What does it look like when innovation processes don't prioritize relationships? One example is when designers ask participants to offer ideas or to interact with a prototype in a way that is primarily transactional and that does not prioritize relationships for their own sake. Even if interactions happen with courtesy and warmth, relationships forged as a means to a predetermined end tend not to sustain collective innovation or resilience over the long term. If not applied thoughtfully, however, prioritizing relationships can also have a dark side. For example, an organization might prioritize relationships with people it is already comfortable working with and fall into an in-crowd/out-crowd dynamic, nepotism, or decision making skewed by favoritism.

One of the breakout actors that demonstrated a balanced approach to prioritizing relationships is Chorus Foundation. Chorus has found that developing a rigorous strategy and set of decision criteria can be coupled with developing deeply relational processes and organizational culture. "We believe that there's a sweet spot between these two poles—a vantage point that holds the creative tensions between organic flexibility and rigorous strategy," says Chorus founder and president Farhad Ebrahimi. "For us, the key to this balance lies in the prioritization of relationships."

This means that Chorus staff not only engage with grantees around funding but also participate in their campaigns and initiatives, building authentic relationships and friendships. "For us, it begins with spending time with the organizations we support in the communities in which they operate—not the clinical 'site visit' of philanthropic jargon, but really spending time with staff and community members as whole people," says Ebrahimi.

The relationships that Chorus cultivates encourage grantees to bring new ideas to the table as well as challenges and critiques, whether or not a part of a formal process. As Ebrahimi says, "These relationships have inspired—one might say required—us to rethink the bulk of our grantmaking."

Here are five ways to prioritize relationships:

- Take time to care for everyone in the process.
- Establish a "co-commitment" together at the outset with clear commitments, ground rules, and practices that everyone agrees to. Return to this as a touchstone.
- Foster a sense of community.
- Cultivate bonds that can outlast the particular project.
- Learn about and strive for a relational worldview.

Practice 3: Leverage Heterogeneity | Most organizations now acknowledge the need for heterogeneity, both in their own makeup and in the organizations and people they work with. But few organizations

go beyond the superficial "check-the-box" inclusion efforts often associated with diversity.

Research on the dynamics of crowdsourcing demonstrates that it is a liability to have only one kind of actor in a crowd or stakeholder group. Diverse perspectives—including strong representation of voices that are often excluded or silenced—are needed to generate innovative insights.[10] But poor outcomes can emerge from nondiverse groups as well as diverse groups that are poorly managed and not supported to work effectively across differences. In other words, heterogeneity leads to better outcomes only when it is thoughtfully engaged.

The importance of heterogeneity is partially explained by a mathematical principle: When a sufficiently large and diverse group of people is asked to make predictions or assessments independently, the errors each makes in coming up with an answer cancel each other out, leaving the most accurate information.[11] However, if individual ideas are not also challenged, the group will not rise above the initial baseline of each individual's own thinking. Therefore, processes that blend independent engagement with collective reflection leverage heterogeneity most effectively and have the best chance of producing profound insights.

The absence of heterogeneity can take many forms. A common example is the lack of diversity among those actually making decisions. Empty versions of heterogeneity—such as tokenism when organizations set out to diversify but fail to go beyond changing surface-level optics of their group—are also unhelpful. They may create demographic diversity but not make the changes in institutional practice necessary to allow the new richness in perspective, knowledge, and ideas to actually be expressed, welcomed, and acted upon.

A balanced approach to leveraging heterogeneity is demonstrated by breakout actor Chaordix, a leading open innovation company, and the work of its chief social scientist, Sharon McIntyre. McIntyre was contracted by Cameroon's electrical utility, Eneo, to help engage its employees in solving a range of operational issues that were causing problems for its clients—including prolonged blackouts, transformer explosions, and financial losses for local businesses. They formed diverse teams of Eneo employees to take part in a two-week "innovation challenge." Many had never collaborated directly with colleagues outside their department or with someone at a different level in the corporation.

Each team reflected many types of diversity, including domain expertise, company department, specific role, employment tenure, degree of technical expertise, work experience, geographic location, and gender. The process involved a series of exercises to identify the problems, look for hidden examples of related operational excellence, and analyze why the pockets of success had been achieved. During this process, all perspectives were given equal weight and respect, opening up opportunities for cross-pollination and collaboration.

Eneo had anticipated that solutions might require an expensive overhaul of the company's software. However, the process identified solutions that had almost no financial cost. One inexpensive solution was for Eneo employees to regularly capture the mobile phone numbers of their customers (which can change very frequently) during routine administrative client interactions, enabling the company to solve a number of critical operational problems.

Here are five ways to leverage heterogeneity:

- Curate groups with meaningful differences in perspective.
- Create multiple channels for input to account for different learning and participation styles.
- Prepare participants to connect across differences effectively.
- Build heterogeneity into all levels of the process, from participants to leadership roles to facilitators.
- Continually assess and build up heterogeneity by engaging participants to identify perspectives that are missing.

Practice 4: Legitimize All Ways of Knowing | It can be challenging for many people to accept that all types of knowledge are legitimate. Because most innovation processes heavily privilege knowledge that reflects academic or technical training, it is important to actively source knowledge in other ways. This often requires people to unlearn what we refer to as "expert bias." Technical knowledge can often be prioritized above all other kinds. For example, when large-scale development projects are proposed, thousands of local residents may recommend alternative designs based on their lived experience, but project developers tend to pay attention only if these concerns are raised by "experts" in quantitative language.[12]

There is a growing acceptance in the social sector of the value of nonformal knowledge as well as the importance of unconscious, intuitive, and embodied insights. Many cultures recognize that humans learn and communicate in nonverbal ways with one another, and with animals, trees, plants, and the land itself. These concepts parallel recent scientific findings such as those showing that walking through a natural landscape activates the brain in ways that enhance problem solving and insight.[13] Practices for drawing upon such forms of knowledge include meditation, time in nature, mindful breathing, prayer, and physical movement.

Otto Scharmer of the MIT Sloan School of Management is a leading scholar on how such ways of knowing relate to innovation. Scharmer founded the Presencing Institute and developed Theory U—a "framework, method and way of being" for "learning from the emerging future." Theory U was inspired by a study that Scharmer and colleagues conducted on the habits of highly creative people that found that all reported having an intimate relationship with a deeper source of knowing—and that their moments of greatest insight happened when they found themselves feeling connected to this source.

A powerful example of how an innovation process can legitimate multiple types of knowledge was demonstrated by the organizers at Standing Rock. Their arguments against the pipeline were consistently articulated by referencing prophecies, wisdom, and spiritual teachings inherited from the Lakota Sioux tribe's elders and ancestors. They also relied on the technical expertise of tribal members and their allies—in clean energy technology, media strategy, structural engineering, and many other fields. These multiple forms of knowledge were held in equal regard in the prayer camp.

"One of the major responses when there was an issue or idea or guidance was needed is, 'We need an elder,'" says Paula Antoine, tribal member of the Rosebud Lakota Sioux and one of the organizers at Standing Rock. "With the elders that were there—having the strength that they do have and the wisdom and the knowledge that they did share with us—I think that was more valuable than a person with a couple PhDs if that person didn't understand the connection to Mother Earth that we needed to keep us going."

The organizers of Standing Rock regularly sourced from the technical expertise of tribal members and their allies, but they did so while recognizing that overly privileging such types of knowledge would undermine the movement's potential.

Here are five ways to legitimize different ways of knowing:

- Create a safe space for acknowledging biases and trying new approaches.
- Include activities that foster mindfulness, such as meditation and breathing.
- Utilize physical movement, music, arts, connection with nature, and other activities that awaken right-brain thinking.
- Explicitly value and invite knowledge from nonformal sources, such as bringing in life experiences and getting advice from elders.
- Create opportunities for participants to find inspiration and insight from a greater power, whether that is a community, a cause, or another source of spirituality.

Practice 5: Prototype Early and Often | A prototype is a draft, model, or mock-up of an idea. To prototype early and often is to share and test ideas with participants at each step of the process. This approach leads to better next-stage drafts, creates buy-in and ownership among participants, and sharpens the group's thinking and innovation. Effective design processes go through multiple prototype cycles—casting a wide net with each cycle.[14]

Research shows that groups produce the richest, most accurate information when they are involved at multiple points throughout a design process. The rapid prototyping and recurrent user testing at the heart of the lean startup methodology affirms this.[15] Most social sector organizations do little if any prototyping. Most large-scale development projects, for example, do not allow the public to comment until a plan has been largely decided and significant sums of money have already been invested in feasibility and preparatory studies, at which point what is actually open for public input is "everything but the essentials."[16]

Our research also found that prototyping too often can cause creative decision fatigue among participants, ask too much of people's time, or stymie an intuitive flow of work. Because the vast majority of the cases we observed did not prototype often enough, organizations should first get comfortable with prototyping regularly before trying to scale back for fear of imbalance.

One breakout actor that has a balanced approach to prototyping is Concordia, an architectural and planning firm that has facilitated community-led design projects across the United States. "We believe you can't ever have too many people at the table," says Concordia principal Bobbie Hill. "Everything we do places the community front and center."

In the aftermath of Hurricane Katrina and multiple attempts at recovery planning that left New Orleans residents feeling excluded, Concordia was asked to lead an alternative process. By then, many people had lost faith in planning processes. "There was just such a lack of trust," says Hill. "So when people came to the first meetings, sometimes it could be slightly challenging."

Concordia held three "community congress" meetings over several months, with partners including AmericaSpeaks, and in coordination with a concurrent process of design meetings happening in each of the city's 13 planning districts. When people showed up at the second and third community congresses, they were stunned to find that their ideas and priorities were being incorporated into the draft plans.

For many residents, it was the first time that their input had been acted upon in an official planning process. This sent a powerful signal that the process was different. Concordia continued to do this throughout the seven-month process and always conveyed information about any constraints at play.

Here are five ways to practice prototyping:

- Begin with prototyping the fundamentals: defining the problems to be addressed, the key goals to be achieved, and the best processes to do so.
- Turn participants' ideas into prototypes at each step of the process, testing out the viability of that piece before moving on to the next.
- Engage participants to roll up their sleeves and do the synthesis and creative work required to turn many ideas into a consolidated prototype.
- Encourage transparency and open discussion about what input was incorporated into a prototype, what didn't make it in, and why.
- Encourage participants to let go of perfectionism and freely share half-baked or even crazy ideas as vital inputs of a collective innovation process.

BREAKOUT INNOVATION IS HARD

One of the things we heard again and again from breakout actors was that doing this kind of work is hard because it means swimming against the current of not only a given field, but also a dominant culture. Peer institutions, funders, investors, and even team members may not understand what is being done and why, and they may be baffled by the prioritization of process, relationships, and power sharing.

Even after very successful breakout innovation processes, it can take considerable coaching and effort to prevent teams and organizations from backsliding toward old ways of working. As shared by a facilitator from the Emergence Collective, reflecting on the Health eHeart Alliance process, "After our initial design process and investment in relationships, we heard from participants that it was hard work expanding to new patients and researchers who had not gone through the process with us."

This experience is common. CDA Collaborative Learning Projects, which advises organizations on incorporating cocreative design, learning, and evaluation, finds that many of its partners struggle with this dynamic. "Even within the same institution, one department may adopt a cocreative new process and strategy—only to find that the plan is being vetoed due to the basic constraints and policies of the institution as a whole," says Isabella Jean, CDA's director of collaborative learning.[17]

Nevertheless, the experiences of the breakout actors suggest that there is potential for the mind-set of breakout innovation to rapidly spread: that there is a virtuous cycle that can happen with the breakout innovation process itself. For a process to work effectively, it requires a mind-set among participants that the process is to be trusted and that it is worth the effort—even if it means pushing one's comfort

limits. While this mind-set may initially be tentative, when a breakout innovation is successful, participants often experience a profound and seemingly permanent shift in mind-set that enables them to even more fully embrace and apply the five practices, opening the door to more paradigm-shifting ideas the next time around.

HOW TO IDENTIFY BREAKOUT INNOVATION

So how do we distinguish cocreative processes that are likely to yield breakout innovation from those that will likely continue to reinforce the status quo? We've created a self-evaluation tool that can help predict the transformative power of a particular design effort. This isn't a tool for judging whether a completed process is successful or unsuccessful. Instead, it's to gauge how well a collaborative process is set up for breakout innovation, and to identify course corrections that will enhance the chance of generating breakout results.

The self-evaluation tool includes a series of questions regarding the application of the five practices. The questions are designed to support evaluators in identifying specific ways the practices are already present within their work as well as to spark reflection on areas for improvement. (The questions and self-evaluation tool are available at our website: www.recollectiveway.com)

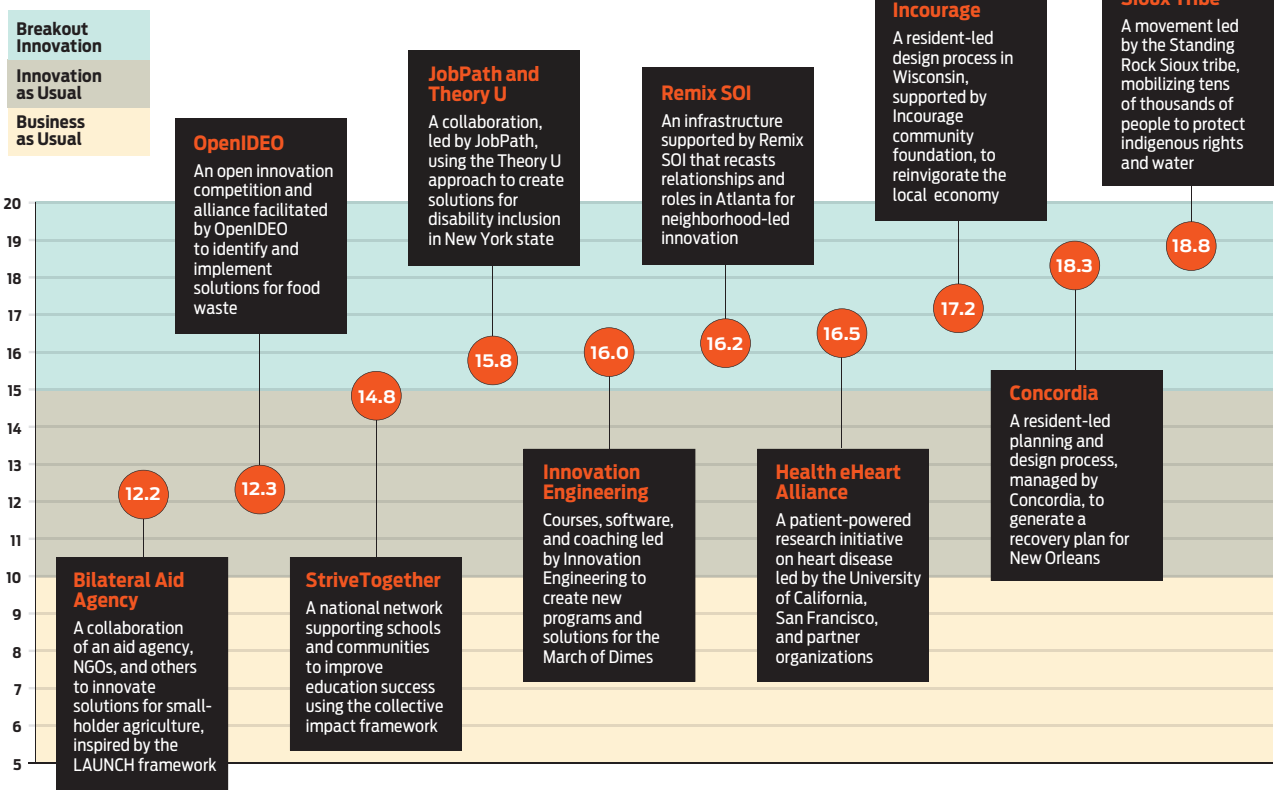
Through the question framework, evaluators surface information on whether and how the five practices are present and assign a rating in accordance with how strongly each practice is present. Each practice receives its own rating on a four-point scale, with four being the highest score. We acknowledge that this tool relies heavily on qualitative evaluation and thus risks being subjective. So we recommend reflecting on the questions with two or more fellow participants of the process, which will have the benefit of multiple perspectives and reduced errors.[18]

A particular design process can receive a total score of 5 to 20. A process that scores 16 to 20 is likely to produce what we call "breakout innovation," with transformative results that outperform current conceptions of what is deemed possible. All of the breakout actors mentioned in this article are producing innovative results within this realm. A process that scores 11 to 15 is likely to lead to the kind of out-of-the-box thinking that many consider innovative, but what we term "innovation as usual," as these results tend not to fully break the mold or fundamentally challenge current conceptions.

A process that scores 5 to 10 may still have a positive impact, but the results are unlikely to be very innovative or groundbreaking. Depending on how low the score, the process may have components that could actually reinforce harmful aspects of the dominant paradigm, such as shutting out the voices, aspirations, and creative potential of stakeholders. We call this "business as usual."

After more than 70 interviews and two years of further qualitative assessments, our research has found that most cocreation processes fall into the categories of innovation as usual or business as usual. We worked with our co-learning community to identify 10 projects that had either received positive press regarding their innovative cocreation or were considered by their peers to be quality examples of cocreation. Next, we engaged independent consultants to interview three stakeholders from each case, and independent evaluation experts to read the interview transcripts and score the cases based on the evaluation tool. (See "Identifying Breakout Innovation" below.)

Identifying Breakout Innovation



Although all solutions impact a range of stakeholders when implemented, not all solution-seeking processes attempt to engage such parties. In fact, this is the state of "business as usual" across the for-profit and social sectors. All 10 cases we chose to investigate represent a break from the status quo in that they are cocreative and work hard to engage a multiplicity of stakeholders to learn together and create better outcomes.

The results tell a perhaps surprising story: Although all of the cases scored well and should be recognized for that, those that most strongly self-identify as cutting-edge innovators did not score the highest. Also, the three efforts led by the most established institutions scored the lowest. Furthermore, the amount of public recognition that cases had garnered throughout their field did not correlate with more innovative results. It was instead those on the fringes, the small towns, the never-heard-of organizations, the unlikely movements, and the disenfranchised that scored the highest. Essentially, it was the underdogs.

This is an encouraging story because it demonstrates the fact that it does not take a big price tag, the support of a large institution, or the branding and awareness of the latest industry trends to break the mold and create groundbreaking, visionary solutions. Anyone can work toward and become a part of breakout innovation. And you can start tomorrow. All it takes to become a breakout actor is dedication, a tolerance for new and sometimes hard experiences, and a shift in mind-set.

A RECOLLECTIVE WAY: UNLEARNING TO INNOVATE

While the mainstream conception of innovation focuses on the new and the not-yet invented, it is striking that the five practices correlated with imaginative, breakout results are largely not new. In fact, elements of the five practices have long been an important part of many indigenous peoples' lifeways and the work of grassroots social movements. Many of our breakout actors talked about the need to "unlearn" certain customary practices in order to do breakout work. This unlearning included having to get comfortable with different ways of distributing decision-making authority, embracing uncertainty, and collectively imagining and creating a different way to be in community.

Fittingly, this very different way of being generates very different results. Our research found that breakout innovation was "breakout" because it often represented unprecedented redistributions of power, resources, and even land, as well as a rethinking of human relations. What most sets apart breakout innovation is that it is not about making marginally better an already intolerable state of affairs, but rather about prioritizing ways of interacting and creating together, which yield designs that feel as though they are pieces of an entirely new, emerging world.

Perhaps the most profound questions raised by our findings are: What is the root of the mind-set that now requires unlearning in order to be capable of breakout innovation, of reimaging our world? What happens that pushes these practices to the fringes of today's dominant paradigm? How can we change things so that these breakout practices are the natural way to imagine, plan, and build together?

To break out of the state of our current world and innovate a future that works for everyone, the way forward may be as much a remembering of what has come before as it is an invention of a brand-new path. In this spirit, we propose a new term: that the mind-set and practice of breakout innovation may be considered a *recollective way*—a process of being comfortable with imagining the not-yet invented, along with having a mindful recollection of an intuition we carry deep within our souls of what it is to be human in community. ■

More information about Joanna Levitt Cea and Jess Rimington's research, including a downloadable version of the self-evaluation tool for breakout innovation, is available at: www.recollectiveway.com

NOTES

1 The advocacy groups that participated in cocreating the Health eHeart Alliance are the American Heart Association, Mended Hearts, StopAfib.org, and SADS Foundation.

2 David Bollier, "Progressive Philanthropy Needs to Spur System Change," *News and Perspectives on the Commons*. May 2016.

3 The 20 organizations were: CDA Collective, Chaordix, Chorus Foundation, Community Organizers Multiversity, Concordia, Environmental Defense Fund (Restore the Mississippi River Delta Coalition), Faster Than 20, Feedback Labs, Foundation for Louisiana, Incourage, Invest2Innovate, Perpetual, Remix SOI (Community Ownership of Innovation), Sehat Kahani, Standing Rock Sioux tribe, TechSoup, Textizen, The Emergence Collective, University of Vermont Masters in Leadership for Sustainability, and Yellow Seed.

4 It is important to note that the co-learning group is predominantly US-based organizations. This is due in part to the limitations of our study and convening capacity, but it also reflects an intentional decision to focus on the sphere in which we operate as two US-based researchers and practitioners and a sphere whose practices have global ramifications, for better or worse. The lack of representation from other areas of the world should in no way imply that the United States is somehow leading on breakout innovation. To the contrary, in the developing world, grassroots organizations and social movements, in many instances, have been thought leaders in these realms.

5 Andrew Van de Ven, *Engaged Scholarship: A Guide for Organizational and Social Research*, Oxford, England: Oxford University Press, 2007.

6 Joanna Levitt Cea and Jess Rimington, "Designing with the Beneficiary: An essential strategy to optimize impact," *MIT Innovations*, forthcoming 2017.

7 Brian Walker, C. S. Holling, Stephen R. Carpenter, and Ann Kinzig, "Resilience, Adaptability and Transformability in Social-Ecological Systems," *Ecology & Society*, vol. 9, no. 2, 2004.

8 David Graeber, *Fragments of an Anarchist Archeology*, Chicago: Prickly Paradigm Press, 2004.

9 Nikolaus Franke, Peter Keinz, and Katharina Klausberger, "'Does This Sound Like a Fair Deal?' Antecedents and Consequences of Fairness Expectations in the Individual's Decision to Participate in Firm Innovation," *Organization Science*, vol. 24, no. 5, 2013: pp. 1495-1516.

10 James Surowiecki, *The Wisdom of Crowds: Why the Many Are Smarter Than the Few and How Collective Wisdom Shapes Business, Economies, Societies, and Nations*, New York: Random House, 2004.

11 Ibid.

12 *Back to Development: A Call for What Development Could Be*, International Accountability Project, 2015.

13 Chris Mooney, "Just Looking at Nature Can Help Your Brain Work Better, Study Finds," *Washington Post*, May 26, 2015; and Chris Mooney, "New Research Suggests Nature Walks Are Good for Your Brain," *Washington Post*, June 29, 2015.

14 Jon Elster, "The Optimal Design of a Constituent Assembly," prepared for the colloquium on Collective Wisdom, Collège de France, May 2008.

15 Cea and Rimington, "Designing with the Beneficiary."

16 Gilbert Rist, *The History of Development: From Western Origins to Global Faith*, London: Zed Books, 1997.

17 CDA calls for a paradigm shift toward a collaborative aid system in: Mary Anderson, Dayna Brown, and Isabella Jean, *Time to Listen: Hearing People on the Receiving End of International Aid*, Cambridge, Mass.: CDA Collaborative Learning Projects, 2012.

18 We tested the index on 10 cocreative design processes in the areas of economic development, public health, disaster relief, product development, education, philanthropy, and public utilities. For each case, a team of third-party evaluators interviewed three stakeholders involved at different stages of the cocreation process, and then transcribed these recorded conversations. The transcripts were read by two independent reviewers and scored according to the index. Shelly Helgeson, Dylan Rose Schneider, Hafsa Mustafa, and Dr. Melissa Nelson each played a vital role in this process. The full list of evaluative questions, the scoring rubric, and additional information is available at: www.recollective.way.com

MARCH 26, 2020

PANDEMICS — LESSONS LOOKING BACK FROM 2050

Fritjof Capra and Hazel Henderson

Imagine, it is the year 2050 and we are looking back to the origin and evolution of the coronavirus pandemic over the last three decades. Extrapolating from recent events, we offer the following scenario for such a view from the future.

As we move into the second half of our twenty-first century, we can finally make sense of the origin and impact of the coronavirus that struck the world in 2020 from an evolutionary systemic perspective. Today, in 2050, looking back on the past 40 turbulent years on our home planet, it seems obvious that the Earth had taken charge of teaching our human family. Our planet taught us the primacy of understanding of our situation in terms of whole systems, identified by some far-sighted thinkers as far back as the mid-nineteenth century. This widening human awareness revealed how the planet actually functions, its living biosphere systemically powered by the daily flow of photons from our mother star, the Sun.

Eventually, this expanded awareness overcame the cognitive limitations and incorrect assumptions and ideologies that had created the crises of the twentieth century. False theories of human development and progress, measured myopically by prices and money-based metrics, such as GDP, culminated in rising social and environmental losses: pollution of air, water and land; destruction of biological diversity; loss of ecosystem services, all exacerbated by global heating, rising sea levels, and massive climate disruptions.

These myopic policies had also driven social breakdowns, inequality, poverty, mental and physical illness, addiction, loss of trust in institutions — including media, academia, and science itself — as well as loss of community solidarity. They had also led to the pandemics of the 21st century, SARS, MERS, AIDS, influenza, and the various coronaviruses that emerged back in 2020.

During the last decades of the 20th century, humanity had exceeded the Earth's carrying capacity. The human family had grown to 7.6 billion by 2020 and had continued its obsession with economic, corporate, and technological growth that had caused the rising existential crises threating humanity's very survival. By driving this excessive growth with fossil fuels, humans had heated the atmosphere to such an extent that the United Nations (UN) climate science consortium, IPCC, noted in its 2020 update that humanity had only ten years left to turn this crisis situation around.

As far back as 2000, all the means were already at hand: we had the know-how, and had designed efficient renewable technologies and circular economic systems, based on nature's ecological principles. By 2000, patriarchal societies were losing control over their female populations, due to the forces of urbanization and education. Women themselves had begun to take control of their bodies, and fertility rates began to tumble even before the turn of the twenty-first century. Widespread revolts against the top-down narrow economic model of globalization and its male-dominated elites led to disruptions of the unsustainable paths of development driven by fossil fuels, nuclear power, militarism, profit, greed, and egocentric leadership.

Military budgets which had starved health and education needs for human development, gradually shifted from tanks and battleships to less expensive, less violent information warfare. By the early 21st century, international competition for power focused more on social propaganda, persuasion technologies, infiltration and control of the global internet.

In 2020, the coronavirus pandemic's priorities in medical facilities competed with victims in emergency rooms, whether those wounded by gun violence or patients with other life threatening conditions. In 2019, the nationwide US movement of schoolchildren had joined with the medical profession in challenging gun violence as a public health crisis. Strict gun laws gradually followed, along with rejection of gun manufacturers in pension funds' assets crippling the gun lobby and, in many countries, guns were purchased back by governments from gun owners and destroyed, as Australia had done in the 20th century. This greatly reduced global arms sales, together with international laws requiring expensive annual licenses and insurance, while global taxation reduced the wasteful arms races of previous centuries. Conflicts between nations are now largely governed by international treaties and transparency. Now in 2050, conflicts rarely involve military means, shifting to internet propaganda, spying and cyber warfare.

By 2020, these revolts exhibited all the fault lines in human societies: from racism and ignorance, conspiracy theories, xenophobia and scapegoating of "the other" to various cognitive biases — technological determinism, theory-induced blindness, and the fatal, widespread misunderstanding that confused money with actual wealth. Money, as we all know today, was a useful invention: all currencies are simply social protocols (physical or virtual tokens of trust), operating on social platforms with network effects, their prices fluctuating to the extent that their various users trust and use them. Yet, countries and elites all over the world became enthralled with money and with gambling in the "global financial casino," further encouraging the seven deadly sins over traditional values of cooperation, sharing, mutual aid, and the Golden Rule.

Scientists and environmental activists had warned of the dire consequences of these unsustainable societies and retrogressive value systems for decades, but until the 2020 pandemic corporate and political leaders, and other elites, stubbornly resisted these warnings. Previously unable to break their intoxication with financial profits and political power, their own citizens forced the re-focus on the well-being and survival of humanity and the community of life. Incumbent fossilized industries fought to retain their tax breaks and subsidies in all countries as gas and oil prices collapsed. But they were less able to buy political favors and support of their privileges. It took the global reactions of millions of young people, "grassroots globalists," and indigenous peoples, who understood the systemic processes of our planet Gaia — a self-organizing, self-regulating biosphere which for billions of years had managed all planetary evolution without interference from cognitively-challenged humans.

In the first years of our twenty-first century, Gaia responded in an unexpected way, as it had so often during the long history of evolution. Humans' clear-cutting large areas of tropical rainforests and massive intrusions into other ecosystems around the world had fragmented these self-regulating ecosystems and fractured the web of life. One of the many consequences of these destructive actions was that some viruses, which had lived in symbiosis with certain animal species, jumped from those species to others and to humans, where they were highly toxic or deadly. People in many countries and regions, marginalized by the narrow profit-oriented economic globalization, assuaged their hunger by seeking "bush meat" in these newly exposed wild areas , killing monkeys, civets, pangolins, rodents, and bats as additional protein sources . These wild species, carrying a variety of viruses, were also sold live in "wet markets," further exposing ever more urban populations to these new viruses.

Back in the 1960s, for example, an obscure virus jumped from a rare species of monkeys killed as "bush meat" and eaten by humans in West Africa. From there it spread to the United States where it was identified as the HIV virus and caused the AIDS epidemic. Over four decades, it caused the deaths of an estimated 39 million people worldwide, about half a percent of the world population. Four decades later, the impact of the coronavirus was swift and dramatic. In 2020, the virus jumped from a species of bats to humans in China, and from there it rapidly spread around the world, decimating world population by an estimated 50 million in just one decade.

From the vantage point of our year 2050, we can look back at the sequence of theses viruses: SARS, MERS, and the global impact of the various coronavirus mutations which began back in 2020. Eventually such pandemics were stabilized, partly by the outright bans on "wet markets" all over China in 2020 . Such bans spread to other countries and global markets, cutting the trading of wild animals and reducing vectors, along with better public health systems, preventive care, and the development of effective vaccines and drugs.

The basic lessons for humans in our tragic 50 years of self-inflicted global crises — the afflictions of pandemics , flooded cities, burned forestlands, droughts and other increasingly violent climate disasters — were simple, many based on the discoveries of Charles Darwin and other biologists in the nineteenth and twentieth centuries:

- We humans are one species with very little variation in our basic DNA.
- We evolved with other species in the planet's biosphere by natural selection, responding to changes and stresses in our various habitats and environments.
- We are a global species, having migrated out of the African continent to all others, competing with other species, causing various extinctions.
- Our planetary colonization and success, in this Anthropocene Age of our twenty-first century, was largely due to our abilities to bond, cooperate, share and evolve in ever larger populations and organizations.
- Humanity grew from roving bands of nomads to live in settled agricultural villages, to towns, and the mega-cities of the twentieth century, where over 50% of our populations lived. Until the climate crises and those of the pandemics in the first years of our twenty-

first century, all forecasts predicted that these mega-cities would keep growing and that human populations would reach 10 billion by today, in 2050.

Now we know why human populations topped out at the 7.6 billion in 2030, as expected in the most hopeful scenario of the IPCC, as well as in the global urban surveys by social scientists documenting the decline of fertility *Empty Planet* (2019). The newly aware "grassroots globalists", the armies of school children, global environmentalists and empowered women joined with green, more ethical investors and entrepreneurs in localizing markets. Millions were served by microgrid cooperatives, powered by renewable electricity, adding to the world's cooperative enterprises, which even by 2012 employed more people worldwide that all the for-profit companies combined. They no longer used the false money metrics of GDP, but in 2015 switched to steering their societies by the UN's SDGs, their 17 goals of sustainability and restoration of all ecosystems and human health.

These new social goals and metrics all focused on cooperation, sharing and knowledge-richer forms of human development, using renewable resources and maximizing efficiency. This long term sustainability, equitably distributed, benefits all members of he human family within the tolerance of other species in our living biosphere. Competition and creativity flourish with good ideas driving out less useful ones, along with science-based ethical standards and deepening information in self-reliant and more connected societies at all levels from local to global.

When the coronavirus struck in 2020, the human responses were at first chaotic and insufficient, but soon became increasingly coherent and even dramatically different. Global trade shrunk to only transporting rare goods, shifting to trading information. Instead of shipping cakes, cookies and biscuits around the planet, we shipped their recipes, and all the other recipes for creating plant-based foods and beverages; and locally we installed green technologies: solar, wind, geothermal energy sources, LED lighting, electric vehicles, boats, and even aircraft.

Fossil fuel reserves stayed safely in the ground, as carbon was seen as a resource, much too precious to burn. The excess CO_2 in the atmosphere from fossil fuel burning was captured by organic soil bacteria, deep-rooted plants, billions of newly planted trees, and in the widespread re-balancing of the human food systems based on agro-chemical industrial agribusiness, advertising and global trading of a few monocultured crops. This over-dependence on fossil fuels, pesticides, fertilizers, antibiotics in animal-raised meat diets, all were based on the planet's dwindling freshwater and proved unsustainable. Today, in 2050, our global foods are produced locally, including many more overlooked indigenous and wild crops, saltwater agriculture and all the other salt-loving (halophyte) food plants whose complete proteins are healthier for human diets.

Mass tourism, and travel in general, decreased radically, along with air traffic and phased-out fossil fuel use. Communities around the world stabilized in small- to medium-sized population centers, which became largely self-reliant with local and regional production of food and energy. Fossil-fuel use virtually disappeared, as already by 2020 it could no longer compete with rapidly developing renewable energy resources and corresponding new technologies and upcycling of all formerly-wasted resources into our circular economies of today.

Because of the danger of infections in mass gatherings, sweat shops, large chain stores, as well as sports events and entertainment in large arenas gradually disappeared. Democratic politics became more rational, since demagogues could no longer assemble thousands in large rallies to hear them. Their empty promises were also curbed in social media, as these profit-making monopolies were broken up by 2025 and now in 2050 are regulated as public utilities serving the public good in all countries.

The global-casino financial markets collapsed, and economic activities shifted back from the financial sector to credit unions and public banks in our cooperative sectors of today. The manufacture of goods and our service-based economies revived traditional barter and informal voluntary sectors, local currencies, as well as numerous non-monetary transactions that had developed during the height of the pandemics. As a consequence of wide-spread decentralization and the growth of self-reliant communities, our economies of today in 2050, have become regenerative rather than extractive, and the poverty gaps and inequality of the money-obsessed, exploitive models have largely disappeared.

The pandemic of 2020, which crashed global markets, finally upended the ideologies of money and market fundamentalism. Central banks' tools no longer worked, so "helicopter money "and direct cash payments to needy families, such as pioneered by Brazil, became the only means of maintaining purchasing power to smooth orderly economic transitions to sustainable societies. This shifted US and European politicians to creating new money and these stimulus policies replaced "austerity" and were rapidly invested in all the renewable resource infrastructure in their respective Green New Deal plans.

When the coronavirus spread to domestic animals, cattle, and other ruminants, sheep and goats, some of these animals became carriers of the disease without themselves showing any symptoms. Consequently, the slaughter and consumption of animals dropped dramatically around the world. Pasturing and factory-raising of animals had added almost 15% of annual global greenhouse gases. Big meat producing multinational corporations became shorted by savvy investors as the next group of "stranded assets", along with fossil fuel companies. Some switched entirely to plant-based foods with numerous meat, fish, and cheese analogs. Beef became very expensive and rare, and cows were usually owned by families, as traditionally, on small farms for local milk, cheese, and meat, along with eggs from their chickens.

After the pandemics subsided, and expensive, vaccines had been developed, global travel was allowed only with the vaccination certificates of today, used mainly by traders and wealthy people. The majority of the world's populations now prefer the pleasures of community and online meetings and communicating, along with traveling locally by public transport, electric cars, and by the solar and wind powered sailboats we all enjoy today. As a consequence, air pollution has decreased dramatically in all major cities around the world.

With the growth of self-reliant communities, so-called "urban villages" have sprung up in many cities — re-designed neighborhoods that display high-density structures combined with ample common green spaces. These areas boast significant energy savings and a healthy, safe, and community-oriented environment with drastically reduced levels of pollution.

Today's eco-cities include food grown in high rise buildings with solar rooftops, vegetable gardens, and electric public transport, after automobiles were largely banned from urban streets in 2030. These streets were reclaimed by pedestrians, cyclists and people on scooters browsing in smaller local stores, craft galleries and farmer's markets. Solar electric vehicles for inter-town use often charge and discharge their batteries at night to balance electricity in single-family houses. Free-standing solar-powered vehicle re-charger units are available in all areas, reducing use of fossil-based electricity from obsolete centralized utilities, many of which went bankrupt by 2030.

After all the dramatic changes we enjoy today, we realize that our lives are now less stressful, healthier, and more satisfying, and our communities plan for the long-term future. To assure the sustainability of our new ways of life, we realize that restoring ecosystems around the world is crucial, so that viruses dangerous to humans are confined again to other animal species where they do no harm. To restore ecosystems worldwide, our global shift to organic, regenerative agriculture flourished, along with plant-based foods, beverages and all the saltwater-grown foods and kelp dishes we enjoy. The billions of trees, which we planted around the world after 2020, along with the agricultural improvements gradually restored ecosystems.

As a consequence of all these changes, the global climate has finally stabilized, with today's CO_2 concentrations in the atmosphere returning to the safe level of 350 parts per million. Higher sea levels will remain for a century and many cities now flourish on safer, higher ground. Climate catastrophes are now rare, while many weather events still continue to disrupt our lives, just as they had in previous centuries. The multiple global crises and pandemics, due to our earlier ignorance of planetary processes and feedback loops, had widespread tragic consequences for individuals and communities. Yet, we humans have learned many painful lessons. Today, looking back from 2050, we realize that the Earth is our wisest teacher, and its terrible lessons may have saved humanity and large parts of our shared planetary community of life from extinction.

****

Fritjof Capra and Hazel Henderson

University of California, Berkeley, 1982