Health Initiatives Foundation, Inc.

South Florida Disaster Resilience Initiative

Phase I: Serious Games After Action Report
November 2018

EXECUTIVE SUMMARY

This After Action Report Short Form provides a brief overview of the essential conclusions of the first stage of Phase I of the Florida Disaster Resilience Initiative's (FL DRI). The South FL DRI is a community-based disaster preparedness initiative working to build resilience in 18 communities in South Florida. Phase I included kick-off meetings, community forums, a Serious Game disaster simulation exercise, and a community-generated budgeting and resource allocation process to identify gaps in mission-critical functions (Appendix A). Detailed analysis of the gaps and solutions articulated by community representatives from 18 South Florida communities (Appendix I) in Miami-Dade, Broward, and Lee counties is presented in the South Florida Disaster Resilience Initiative Serious Game Exercise Community Discussion Findings on Gaps and Solutions.

Conclusions

1. Although vulnerable communities are often considered incapable of understanding their problems, or of arriving at solutions that effectively address them, eighteen vulnerable communities in South Florida have identified gaps in mission-critical functions in their communities, and potential solutions to resolve those gaps;
2. South Florida's most vulnerable communities of color do not have the needed capacities and resources to fully resolve the mission-critical gaps that threaten their residents due to the mounting risks of climate change;
3. Eighteen of the most vulnerable communities in South Florida have begun to work on improving their community and neighborhood self-reliance programs and facilities using materials and methods of the FL DRI;
4. Eighteen of the most vulnerable communities in South Florida have begun to work with their county and municipal governments to improve government responsiveness to their needs under mounting climate change threats;
5. In Stage 1, FL DRI Action Teams, groups of subject matter experts, have been formed to make rapid progress on mission-critical gaps, and Community Captains are leading FL DRI efforts within each of the eighteen communities;

6. Detailed gaps and solutions have been articulated from each participating FL DRI community.

A Phase I, Stage 2 initiative has been engaged based upon the Stage 1 findings in this report to advance social cohesion and self-efficacy in the participating FL DRI communities. Phase I, Stage 3 efforts have been engaged to lay the foundations for an emerging Florida Disaster Preparedness Plan and its proposed efforts to prepare for a severe hurricane season in 2019 and beyond in a Phase II initiative. The Florida Disaster Preparedness Plan is being developed by a coalition of natural leaders within the communities participating in the Florida Disaster Resilience Initiative based upon environmental justice values, census block data, and mission-critical function data being collected down to neighborhood Resilience Capacity Zones, starting in the most vulnerable hotspots.

BACKGROUND

The hurricane season of 2018, passed without significant impact in South Florida by named storms. Unfortunately, the State of Florida was again seriously impacted. The damage and costs from fast-moving Category 4 Hurricane Michael have yet to be fully assessed and quantified. The oceans are warming, and that fact makes preparing for stronger hurricanes imperative, because, in the words of NASA Senior Research Scientist Dr. Tim Hall, "Basically warmer seawater is the fuel for hurricanes and that drives stronger hurricanes as the oceans warm." FEMA's 2018 - 2022 Strategic Plan calls for a culture of preparedness in which, "Every segment of our society, from individual to government, industry to philanthropy, must be encouraged and empowered with the information it needs to prepare for the inevitable impacts of future disasters."[1]

The need to make specific preparedness plans for vulnerable populations was well reflected in Governor Scott's Select Committee on Hurricane Response and Preparedness Recommendations, prepared after the 2017 hurricane season. Recommendations included: Providing an exemption for information revealing the identity of persons registering for emergency sheltering with a local emergency management agency (p.14); Creating a temporary program to provide funding for affordable housing recovery efforts to address the impact of hurricanes Irma and Maria on affordable housing stocks, particularly in the Florida Keys and other severely damaged areas and counties affected by Puerto Rican evacuees from Hurricane Maria (p.20); and identifying ways to lower the cost of affordable housing development and incentivizing more units at affordable rents (p. 20). These are much needed actions to alleviate the effects of hurricanes on socioeconomically vulnerable residents of Florida, however, there was no requirement for any of the recommendations to become law.

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[1] Martinez, Alejandra. "NASA Scientist Says Wind, Flooding And Rainfall Increase The Intensity Of A Hurricane." WLRN, 2018, www.wlrn.org/post/nasa-scientist-says-wind-flooding-and-rainfall-increase-intensity-hurricane

Advancements are being made in Florida to address its extreme vulnerabilities under climate change. However, recent natural disasters are becoming too big for adequate government disaster response.[2] Also, Florida's state, county, and municipal plans, budgets, and actions have been and are continuing to significantly fall behind the well-documented climate change risks that have for decades been described by scientific consensus, in part due to a fear by elected leaders, managing short-term vested interests, that admissions about climate change's devastating impacts would disrupt Florida's economic momentum.[3] That said, the recent International Panel on Climate Change[4] and the 2018 U.S. Government Report on Climate Change[5] make it clear that current policies and lack of adaptations and political economic transformation is deeply endangering the social and economic conditions worldwide, and in particular in the United States and specifically Florida, as one of the most vulnerable states, still contributing significantly to adverse climate impacts.

Equity in disaster preparedness and response is a moral imperative because human safety and human lives are at stake. As described in this report, South Florida's low income African America, LatinX, and Caribbean communities are particularly vulnerable. Hurricane preparedness supplies cost money, as do the vehicles and fuel that facilitate evacuation. United Way's ALICE (Asset Limited, Income Constrained, Employed) population is comprised of people who work, earn more than the Federal Poverty Level, but can barely cover the basics of housing, child care, food, health care and transportation. Fully 58% of households in Miami-Dade County are part of this ALICE workforce, making the added expense of hurricane preparedness supplies out of reach. The 2017 hurricane season on the Florida peninsula was a wakeup call to South Florida's most vulnerable communities.[6]

The Miami-Dade County Hurricane Irma After Action Report[7] addressed this vulnerable population with two recommendations: 1) The County should coordinate and partner with community and faith-based organizations to identify vulnerable populations prior to a storm and

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[2] Cassidy, Christina A. and Salsberg, Bob. "Costs From Major Natural Disasters Can Stress State Budgets.", NBC Miami, 2018,
https://www.nbcmiami.com/news/local/Major-Natural-Disasters-Costs-State-Budgets-445385463.html.

[3] Dennis, Brady and Mooney, Chris. "Major Trump administration climate report says damage is 'intensifying across the country'". The Washington Post, Energy and Environment, 2018,
https://www.washingtonpost.com/energy-environment/2018/11/23/major-trump-administration-climate-report-says-damages-are-intensifying-across-country/?utm_term=.db45f3045861

[4] "Intergovernmental Panel on Climate Change", WHO UNEP, 2018.
https://report.ipcc.ch/sr15/pdf/sr15_spm_final.pdf

[5] Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart. "USGCRP, 2018: Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II". U.S. Global Change Research Program, 2018,
https://nca2018.globalchange.gov/downloads/NCA4_2018_FullReport.pdf

[6] "The 2017 United Way ALICE Report." United Way of Miami-Dade, 2017,
unitedwaymiami.org/what-we-do/our-work-in-financial-stability/the-united-way-alice-report

[7] Rundle, Katherine Fernandez, Horn, Don L., and Rosen, Howard. "Final Report of the Miami County Grand Jury Circuity Court of the Eleventh Judicial Circuit of Florida in and For The County of Miami-Dade, Florida, Fall Term". A.D., 2017,
http://www.miamisao.com/wp-content/uploads/2016/07/Grand-Jury-Fall-2017-Report-As-Storm-Clouds-Gathered-FINAL.pdf

follow-up with identified residents after a storm to connect residents with needed services; and 2) The County should expeditiously activate emergency food distribution sites within impacted areas. Access to food after a storm event can be a life or death situation for many families (p.5). However, some of the recommendations establishing the distribution of goods and services after a hurricane excluded vulnerable populations from the decision making process, and recommended simply that residents should be made aware of the decisions of others, such as recommendation 16: In the event of a wide-scale power outage, residents should be given more information about how FPL prioritizes the service restoration (p.6). Lee County's Assessment of Sustainability based on the STAR Community Rating System[8] identified Equity and Empowerment, defined as ensuring equity, inclusion, and access to opportunity for all residents, as its greatest weakness at 29.50%.

The Southeast Florida Climate Change Compact's Regional Climate Change Plan 2.0 has an aspirational goal in the area of Social Equity, which is to "Guide and support municipalities and counties in the Compact region to create equitable climate policies, programs, and decision-making processes that consider local socio-economic and racial inequities and ensure all can participate and prosper."[9]

Neither the State of Florida nor South Florida's local governments have sufficiently articulated what vulnerable communities and neighborhoods can do to engage the essential capacities and resources needed to preserve their health, human security, and sustainability during and after disasters. Recommendations, goals, and reports are neither policy nor law. They remain unfunded aspirations until they are acted upon. There is as of yet no plan within Florida as to how climate migrants can be made whole again in a way that assures them a stable future for their families and their communities. However, other states, such as Louisiana, over 15 years following Hurricane Katrina is working on proactive stances to establish climate safe "communities of opportunity" that can receive climate migrants from inundated and damaged coastal area under an emerging post-petroleum political economy designed to support vast improvements in social and environmental justice.[10]

The direct experience of risks and gaps in the vulnerable communities of South Florida during and after Hurricane Irma, and the certainty that Black and Brown communities know their own needs best, led New Florida Majority and its coalition partners to seek funding from the Miami Foundation to support a participatory planning process in 18 communities in South Florida, with technical assistance and guidance from Health Initiatives Foundation, Inc. The first phase of this South Florida Disaster Resilience Initiative has laid the groundwork for a planning process that will produce a Disaster Preparedness Plan sufficient to protect the most vulnerable communities

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[8] "Complete LEE: Sustainability Plan",
https://floridacommunity.com/completelee/completeLEE-Sustainability-Plan.pdf
[9] Southeast Climate Change Compact: Regional Climate Action Plan 2.0", 2017,
http://www.southeastfloridaclimatecompact.org/wp-content/uploads/2018/02/RCAP-2.0_Abridged-Version.pdf
[10] "FFL will join Louisiana coastal partners to welcome international experts for strategy sessions to address climate change",
https://foundationforlouisiana.org/news/152/ffl-will-join-louisiana-coastal-partners-to-welcome-international-experts-for-strategy-sessions-to-address-climate-change

in South Florida and their residents as they transform to adapt to climate change and escalating climate gentrification.

OVERVIEW

FLORIDA DISASTER RESILIENCE INITIATIVE

STEPS TOWARD COMMUNITY RESILIENCE
With an Emphasis on South Florida's Most Vulnerable Communities

The Florida Disaster Resilience Initiative (FL DRI) has been designed to be implemented in 10 initial layers during five phases over a five-year period across six regions of Florida that represent different biomes with different types of risks and capacities under climate change. This approach has enabled the FL DRI to begin its Phase I in South Florida and Central Florida in 2018 with modest resources from the Miami Foundation focused on deepening preparedness planning and resilience-oriented community organizing and interventions. In this first year of FL DRI Serious Game exercises and community-generated budgetary plans, following six years of exploratory Resilience System development in South Florida, Layer 1 community engagement, network expansion, capacity-building and resource development are being activated for Florida's most vulnerable communities under the influences of exponential global changes, including but not limited to climate change.

The central 2018 goals of the FL DRI's Phase I, Layer 1 activities are to elevate the voices of South Florida's most vulnerable LatinX, African American, and Caribbean communities regarding the gaps in their preparedness and response capacities and to establish what their baseline conditions are. With a clear understanding of these gaps in hand, community-articulated solutions based in hyper-local knowledge can drive positive changes measured specifically in terms of improvements in health, human security, resilience, and sustainability within their own neighborhoods. Initial assessment data has been collected from 16 communities addressing 26 parameters that determine whether their community is trending toward extreme vulnerability and collapse under climate change or toward resilience and sustainability. (See Appendix A for a list of the 26 mission-critical function parameters being measured).

The FL DRI has 10 layers (see Appendix B) designed to improve and maintain high levels of health, human security, resilience, and sustainability of all Florida communities during what the International Panel on Climate Change[11] explains will be a century of increasing temperatures and intensifying negative impacts on ecosystems, biodiversity, human health and Florida's communities. Unless societal greenhouse gas emissions into the atmosphere are kept below

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[11] Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, Maycock, M. Tignor, and T. Waterfield. "IPCC, 2018: Summary for Policymakers. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty". World Meteorological Organization, 2018, Geneva, Switzerland, https://www.ipcc.ch/sr15/chapter/summary-for-policy-makers/

levels that would increase average global temperatures of 1.5 degrees Celsius above pre-industrial levels, the consequences look dire for the vulnerable communities participating in the FL DRI, even with strong adaptation measures engaged. If not significantly curbed by 2030, current uses of atmosphere-polluting hydrocarbons (from the use of fossil fuels and petrochemicals) are expected to have severe impacts on the Florida peninsula as one of the most vulnerable areas in the world to climate change[12]. Climate science is predicting more frequent and intense storms with a commensurate increase in damage, and increased sea level rise under escalating climate change. Florida's currently compromised mission-critical functions, such as access to clean water and safe housing, food security, health, and economic well-being, will lead to life-threatening compromises in the human condition as much of Florida becomes an archipelago — a series of islands continually threatened by a rising ocean and adverse weather.

South, Central and West Florida will be particularly impacted as sea levels rise and salt water incursion ruins fresh water supplies for coastal cities and agricultural lands lose their productivity.[13,14] Many areas of South Florida are expected to flood, while being damaged by more frequent and severe storms and intense heat in areas in which a centralized electrical grid dependent upon fossil fuels and nuclear energy will become increasingly more expensive and unreliable.[15] New laws and rapid changes in behavior, infrastructure, social process and social structure will be essential for millions of Floridians to survive. Millions will be forced to move out of high risk areas[16] in order to seek new places in which their families can thrive in emerging communities of opportunity on higher ground with the carrying capacities to absorb larger numbers of new residents while maintaining sustainability. Without adequate planning and political economic realignment, the communities receiving millions of climate migrants, a group of individuals leaving their homes and communities due to impacts (i.e. hurricane, wildfire) of climate change, such as in Central Florida will struggle with gentrification, over-burdened services (such as in schools and social services), intense exponential change, and densification of population - particularly in communities of color.

Below are 20 key points that describe the drivers and central activities of the Phase I Florida Disaster Resilience Initiative (FL DRI) to help South Florida's communities begin the process of ensuring their residents can reduce their vulnerabilities and engage in a type of transformative resilience that will allow their children and future generations to live stable, happy, healthy, and productive lives in the face of climate change.

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[12] "Climate Change and Florida: What You Need to Know". The Climate Reality Project, 2018, https://www.climaterealityproject.org/blog/how-climate-change-affecting-florida

[13] "Invading seawater jeopardizes South Florida's drinking water, but we can lessen the threat". Sun Sentinel Editorial Board, 2018, https://www.sun-sentinel.com/opinion/editorials/fl-op-editorial-sea-level-rise-drinking-water-20180601-story.html

[14] "FWRMC Salinity Network Workgroup". Florida Department of Environmental Protection, Salinity Network, 2010, https://floridadep.gov/dear/watershed-monitoring-section/content/salinity-network

[15] Porter, Wendell A., and Knowles, Hal. "Climate Change Impacts on Florida's Energy Supply and Demand". University of Florida, Gainesville, FL, 2017, https://fsu.digital.flvc.org/islandora/object/fsu:539157/datastream/PDF/view

[16] Hauer, Mathew E. "Migration induced by sea-level rise could reshape the US population landscape". Nature Climate, 2017, https://go.nature.com/2BXxiJU

1. Actions Needed to Protect Vulnerable Communities Under Climate Change

It is broadly recognized that South Florida has an extreme and increasing vulnerability under climate change. Yet many levels of Florida's government have yet to fully acknowledge and take appropriate actions to address the rising challenges that will allow climate resilience activities in the most vulnerable communities to meet these challenges. For example, despite the decades of scientific consensus and warnings of the International Panel on Climate Change and the direct immediate evidence within Florida, Rick Scott denied the existence of human-induced climate change for most of his tenure as Florida's governor. The lack of updated FEMA flood maps results in inadequate building codes, and provide residents with improper information about their flood risk. This can result in residents remaining in areas that should be evacuated, and in high uninsured losses because homeowners do not carry flood insurance, as when 70% of the homes in Mexico Beach were destroyed and an additional 10% were severely damaged by a reported 19 foot surge during Hurricane Michael. FEMA's surge maps did not consider these homes to be in a flood zone.[17] At the local level in South Florida, county and municipal governments are doing little to nothing to curb the pressures of gentrification in low income neighborhoods, such as Little Haiti, as others look to higher ground to settle away from the most severe impacts on the coast. Most of these communities were significantly underserved by county and municipal emergency management and other agencies during and after Hurricane Irma's glancing blow in 2017.[18]

2. Improving Resilience Through the South Florida Disaster Resilience Initiative

18 African American, LatinX, and Caribbean communities have been identified by their residents and experts as being most at risk in Miami-Dade, Broward, and Lee counties. These communities are seeking to improve their resilience through the Florida Disaster Resilience Initiative (FL DRI).

3. Identifying Mission-Critical Function Status

Under the FL DRI, these communities have begun to identify their mission-critical functions (areas) that pose the most significant threats to their residents and to their communities as a

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[17] Brugers, James. "FEMA Flood Maps Ignore Climate Change, and Homeowners Are Paying the Price", Inside Climate News, 2018, https://insideclimatenews.org/news/01112018/fema-flood-map-climate-change-hurricane-mexico-beach-florida-sea-level-rise?utm_source=InsideClimate+News&utm_campaign=0e263ea855-&utm_medium=email&utm_term=0_29 c928ffb5-0e263ea855-327500765

[18] Rundle, Katherine Fernandez, Horn, Don L., and Rosen, Howard. "Final Report of the Miami County Grand Jury: Fall Term A.D. 2017", Circuity Court of the Eleventh Judicial Circuit of Florida in and For The County of Miami-Dade, Florida, 2017, http://www.miamisao.com/wp-content/uploads/2016/07/Grand-Jury-Fall-2017-Report-As-Storm-Clouds-Gathered-F INAL.pdf

whole under probable emerging 21st century disaster conditions, with an emphasis on climate change.

4. Plans and Capacities to Reduce High Vulnerabilities

Hurricane Irma demonstrated the high and escalating levels of vulnerability these 18 communities face during the early to mid-21st century, unless they develop executable plans and capacities to build resilience against long-lasting, catastrophic damage under many scenarios and hazards.

5. Community-Centric Collaborations to Improve Resilience

As a result of actions taken during and after Hurricane Irma, the Miami Foundation and its Post-Irma Recovery Fund chose the New Florida Majority, with technical assistance from Health Initiatives Foundation, Inc., to develop a unity of effort with the State-wide Alliance Group, the Miami Climate Alliance, Catalyst Miami, Community Justice Project, Black Broward, We Count, FAMN, Sant La and other community groups committed to climate resilience and social justice in Miami Dade, Broward and Lee counties. Together, they are all acting to maximize the resilience of South Florida's most vulnerable communities in the important teachable moment during the 2018 hurricane season just following Hurricane Irma's glancing impact in 2017. Under the Florida Disaster Resilience Initiative, this powerful community-centric coalition is preparing and empowering these 18 communities to maintain and improve their health, human security, quality of life, functional life-capacity, and readiness under rapid local, regional, and global changes — including but not limited to climate change.

6. FL DRI Kick-off Convened Key Organizers

The Florida Disaster Resilience Initiative began with a convening of many of the key community-centric actors in South Florida. In this initial kick-off meeting, the problems, gaps, assets, and opportunities for organizing efforts to improve climate resilience were mapped and discussed following recollections of the challenges posed by Hurricane Irma.

7. Stage 1 Community Forums

During Phase I, Stage 1, Community Forums were held leading up to the Climate-Resilient South Florida Serious Game exercise. A total of 166 community members participated in discussions of their gaps and needs going into the 2018 hurricane season. Their communities' hotspots, supporting organizations, and assets were mapped, including potential neighborhood Resilience Hub sites.

8. Action Teams Developing New Capacities to Respond On Key Issues

Action Teams were organized through the support of the Miami Foundation to engage knowledgeable subject experts in collaborative dialogue focused on key mission critical

functions, such as food security, medical, clean water, energy, communication, community justice, and other key factors vital to the resilience of the participating FL DRI communities.

9. South Florida Serious Game

The first Climate-resilient South Florida Serious Game exercise was held on June 30, 2018 to elevate the voices of the most vulnerable communities in South Florida. The exercise brought together all of the FL DRI communities to experience a simulated set of disasters to reveal the current baseline state of decision-making and simulated actions taken by community members to address collective vulnerabilities using current assets available to them within their communities. Clear lists of mission-critical gaps were developed from each community discussion table at the Serious Game. In the afternoon, Solution Teams formed to solve the key gaps identified in the morning session. Solution sets developed by the community-based Solution Teams were then reported out to a Response Panel including elected officials, other government representatives (e.g., Department of Emergency Management) and technical experts facilitated by the Executive Director of the New Florida Majority. The day closed with a session focused on the development of a unity of effort amongst all participants.

10. Stage 2 Community Forums - Building Social Cohesion

In each yearly phase of the FL DRI over a five-phase, five-year process, it is proposed that Stage 2 FL DRI community forums will focus on building social cohesion. The purpose of these Stage 2 forums are to look deeply into the community-identified mission-critical gaps down to the neighborhood level followed by reaching a consensus on prioritizing these mission-critical gaps. Solution sets are then developed by the community to address the high priority mission-critical functions down to the census block (Resilience Capacity Zone) level in their neighborhoods.
 The series of Stage 2 community forums lead to the establishment of detailed operational tasks and sub-tasks, each with champions, budgets, and deadlines within each participating community. These outputs can then be translated into community-generated budgeting and a task server for managing best outcomes.   During Phase I, NewFM, based upon the availability of the post-IRMA funds, chose to focus its Stage 2 efforts on the development of Action Teams, supporting local community organizations, and community-generated resource plans to prepare for the 2018 hurricane season focused on the development of Community Emergency Operations Centers. Other community organizations, such as Catalyst Miami, chose to focus on other activities, such as the development of Resilience Hubs to build community cohesion at the neighborhood level in conjunction with municipal government. Health Initiatives Foundation, Inc. furthered social cohesion by developing a Community Captain program emphasizing training and incentives for natural leaders to build resilience capacities within their communities.

11. Community Engaged Resource Allocations

It has been proposed that over a five-year period, the Florida Disaster Resilience Initiative develop mechanisms for funding a community-based participatory budgeting process with community-engaged resource allocations. In Phase I, NewFM, given limited resources, decided to focus first on community-engaged resource allocation. Discussions started in Stage 1

Community Forums that would lead to the distribution of hurricane preparedness resources within the FL DRI communities led by the community organizations and Community Captains in each participating community. These community-generated resource lists were shaped into proposals and plans for funds enabling improvements in distribution of key hurricane preparedness resources in Phase I, Stage 2. In Phase I (2018), this process of resource allocation was initiated under limited budgets to face the challenges of the current hurricane season. This was done with plans to increase the budget for preparedness resources in future years as the process of participatory budgeting and community-engaged resource allocations are refined and made more robust with increasing institutional capacities and resources within the communities.

12. FL DRI Mid-Term Evaluation

A mid-term evaluation took place with The Miami Foundation in mid- August 2018 to review what had been accomplished in Stage 1 of the FL DRI and during the Climate Resilient Serious Game exercise. Discussions also focused on how Stage 2 activities could be optimized in both South Florida and Central Florida, given limited resources available during Phase I.

13. Mission-critical Function Assessments

An initial set of Mission-critical Function Assessment data (covering 26 parameters) was gathered during the South Florida Serious Game exercise (Appendix A). A second mobile device-based assessment data gathering process has been tested in Central Florida and in the Hurricane Michael disaster areas in the coastal areas of the Panhandle, and will be implemented in South Florida during Quarter 1 of 2019. The goal of the Stage 2 extension of the cellphone-based Mission-Critical Function Assessment tool (supplementing paper assessments) is to expand the reach of this structured data collection mechanism down into the hyperlocal concerns within the most vulnerable neighborhoods. This data will be mapped, along with crowd-sourced unstructured data as resources become available for the heat-mapping of the 26 parameters that determine vulnerability and resilience by neighborhood. Initial experiments of this heat-mapping process have been executed in the North Florida Resilience System during the post-Hurricane Michael response and relief phase, using the Fulcrum app. Given limited resources for executing the Mission-Critical Function assessments through NewFM, the FDRI engaged HIFI volunteers and resources independent of Miami Foundation funds to implement the initial test surveys in the North Florida disaster areas. These cellphone-based FL DRI Mission-Critical Function assessments tools and methods will be made available to the South Florida DRI as soon as community organizing resources are garnered to fund the staffing, training and implementation of the hyperlocal execution of the FL DRI surveys as well as the mapping of the data.

14. Communication & Computing Environmental Scan & Landscape Analysis

Communication, computing resources, and collaborative environments are critically important to prepare for, respond to, recover from, and mitigate the negative effects of climate change. Funds were not available to execute the robust development of the FL DRI communication, computing,

and collaboration capacities and infrastructures in Phase I within South Florida. However, funding was made available to identify the common means of communicating, computing, and collaborating in the FL DRI participating communities today within an environmental scan. Problems and opportunities are being identified during Phase I to improve communication, computing, and collaborative environments for emergency management and resilience work in the FL DRI communities. With this information in hand, along with observations of these capacities during the Hurricane Michael disaster response in North Florida, a landscape analysis is being performed to assess how better information and communication technology (ICT) tools and methods can be engaged in South Florida's most vulnerable communities to increase their health, human security, resilience, and sustainability.

15. Policy Meetings Round 1

During the summer and fall of 2018, initial preliminary findings from the Serious Game exercise and other SF DRI meetings have been discussed with elected officials and other influential government officials, such as Miami-Dade county Emergency Management Department staff, Commissioners and the Long Term Recovery Committee of Broward County. For example, discussions have taken place regarding the development of a community chair in the Miami-Dade County EOC to enable better information flow from the FL DRI communities into the EOC during a declared event in which the EOC has been activated, so as to enable effective emergency response and adequate humanitarian aid and relief materiel flow to identified hotspots within the FL DRI communities. Discussions are now beginning between the County and the South Florida DRI coalition of communities about how community representatives will be chosen and trained for their responsibilities in the County EOC. Additional discussions are taking place with government officials and other influentials regarding the need for capacities and infrastructures essential to communications, computing, and collaborative environments that will link South Florida's most vulnerable communities to their own internal resources (e.g., neighborhood Resilience Hubs), as well as to county and municipal elected officials and agencies during extreme events and social crises, in association with the FL DRI-related Community EOCs and Resilience Hubs within FL DRI participating communities.

16. After Action Report and Hot Wash

During October, a draft version of the internal After Action Report, which is an early precursor to the South Florida Disaster Preparedness Plan was released to FL DRI representatives of the Serious Game exercise for their feedback. A "Hot Wash" session was held on November 9 to ensure that the ideas expressed in the After Action Report represent the views conveyed by community members and response panels in the Serious Game exercise. With input from the Hot Wash process, a final 2018 South Florida Disaster Preparedness Plan will be published in March 2019.

17. Report to the Miami Foundation

In early November, a Florida Disaster Resilience Initiative report is being delivered to The Miami Foundation, as the principal financial sponsor of the Phase I FL DRI activities in 2018.

18. Distribution of the South Florida Disaster Preparedness Plan (After Action Report)

Starting in March 2019, the South Florida Disaster Preparedness Plan will be published and distributed widely within the participating communities and to parties interested in raising the level of resilience in South Florida's most vulnerable communities. This plan will lay the foundations for discussions with policy makers, donors, and other influentials, as well as community members regarding how the next four phases of the FL DRI should be executed along with a detailed plan for the execution of Phase II activities in 2019 to build upon the FL DRI's baseline data and institutional foundations built during Phase I in 2018.

19. Policy Meetings Round 2

In late 2018, press conferences and further meetings with government officials, donors, and other influentials will be engaged to advance policies to address essential improvements to the participating communities in the Florida Disaster Resilience Initiative within South Florida.

20. Final Initiative Review, Evaluation, and Phase II Planning

A final review and evaluation of Phase I, Layer 1 of the Florida Disaster Resilience Initiative and its 2018 Florida Disaster Preparedness Plan will take place around December 10, 2018. This meeting will also kickstart a process of Phase II planning to prepare for the 2019 hurricane season and other probable future disasters threatening the most vulnerable populations in South Florida.

KEY FINDINGS

1. Eighteen (18) Communities from South Florida Participated in Community Forums & Serious Game Exercise

2. One Hundred Sixty-six (166) Community Representatives Participated in Phase I, Stage 1 Community Forums

3. One Hundred Thirty (130) Community Representatives Participated in the Serious Game Exercise (including organizers)

4. Fifty-one Percent (51%) of Respondents Stated that Their Community is Extremely Vulnerable to Climate Threats

5. Seventy-one Percent (71%) Felt Their Community was Extremely or Somewhat Vulnerable to Climate Threats

6. Over fifty Percent (50%) of the Respondents Rated All 26 Mission-Critical Functions as Vulnerable in Their Communities

7. The Vast Majority of the Communities Participating in the Serious Game Exercise Were Able to Provide Strong Evidence-based Depictions of Their Gaps and Solutions

8. Top Five Mission-Critical Gaps
   8.1 Communication Infrastructure/Information Access/Education
   8.2 Health/Social Services
   8.3 Medical Response/Emergency Management
   8.4 Food & Water Security
   8.5 Governance

9. Top Five Solutions
   9.1 Establish networks that improve communication, computing and collaboration within communities
   9.2 Fund community agencies/organizations that are already providing health and social services inside the communities
   9.3 Have distribution hub to store food for longer period of time
   9.4 Develop mechanisms capable of establishing the capacities and resources within FL DRI communities essential to achieve resilience
   9.5 Ensure good communication channels between the communities and the right agencies to enforce their accountability

10. Resources Most Requested for Hurricane Preparedness
    10.1 Community Member Stipend
    10.2 Solar Powered Appliances (generator, flashlight, cooler)
    10.3 Non-Perishable Foods
    10.4 Water

11. Breakdowns in Transportation was the Most Frequently Stated Infrastructure Vulnerability Under Emergency Conditions with Energy Systems Being a Close Second

KEY RECOMMENDATIONS

1. Improve Understanding of the Role of Culture in Vulnerability and Resilience to be able to Effectively Serve Black and Brown Communities

2. The Promotion of Community Social Cohesion must be Established as a High Priority within FL DRI Communities

3. Additional Mechanisms must be Provided for Improving Social Connectedness for the Most Vulnerable Members of FL DRI Communities

4. The FL DRI must Engage Better Communication Between Government and the Most Vulnerable Communities

5. An Effective System of Community-generated Budgeting and Resource Allocations must be Developed Within the Most Vulnerable Communities

6. Robust Resilience Hubs must Effectively Serve Every FL DRI Neighborhood

7. The FL DRI must Develop Agile Logistics and Distribution Intelligent Networks (ALADINs) to Provide Logistics Support, Distribution of Essential Materiel, and Ensure Communication Network Connections Between the County EOC, Community EOCs, Emergency Warehouses, Emergency Shelters and Neighborhood Resilience Hubs During Emergency Conditions

8. (Additional Mechanisms) The FL DRI must support convening exercises between the Most Vulnerable communities, associated CBO networks and community alliances, along with Government for the advancement of community based innovation projects, just-in-time disaster resilience learning modules and a community disaster resilience workforce pipeline and related non-profit and business ecosystems

9. The FL DRI must support and engage local community alliances, the Most Vulnerable Communities and associated CBO networks, along with Government for the collaborative development of a future Social Services Master Plan

10. The FL DRI must Enable Better Unity of Effort within Communities and Between Communities and Government

Appendices

Appendix A - Mission-Critical Functions

Mission Critical Functions

- Clean Water
- Food Security
- Agriculture
- Housing
- Environment Health & Safety
- Health Services
- Shelter in Place & Evacuation
- Psychosocial Resilience
- Supply Chains
- Energy – Temperature Management
- Energy – Lighting and Cooking
- Energy – Renewable vs Central Grid

- Education
- Hygiene & Prevention
- Communication Systems
- Waste Management & Sewers
- Coastal Protection Infrastructure
- Transportation
- Community Security
- Community Commons & Culture
- Social Services
- Viable Value Chains
- Climate Mitigation & Transformation
- Data and Information Management

SOUTH FLORIDA MISSION-CRITICAL FUNCTION ASSESSMENT

Please use the following scale to indicate the state in which you believe the functions listed below are in your community. *(Select one option for each function.)*

Vulnerable = open to damage, destruction or disruption
Resilient = able to withstand or recover quickly from a disaster

Functions/ Vulnerability Scale	*Vulnerable*	*Not Sure*	*Resilient*	*Total*
1. Water (piped system, well, rainwater catchment)	*43 (64%)*	*11 (16%)*	*13 (19%)*	**67**
2. Food Security (food processing, food storage, food distribution, nutrition)	*47 (68%)*	*9 (13%)*	*13 (19%)*	**69**
3. Agriculture (farming, livestock, food production)	*39 (60%)*	*21 (32%)*	*5 (8%)*	**65**
4. Housing (existing structures, safe rooms, utilities, sanitation, construction)	*51 (74%)*	*5 (7%)*	*13 (19%)*	**69**
5. Environmental Health and Safety (management of toxic materials, hazards)	*52 (76%)*	*10 (15%)*	*6 (9%)*	**68**
6. Health Services (access to herbal medicines, clinics, hospital care)	*51 (75%)*	*9 (13%)*	*8 (12%)*	**68**
7. Shelter in Place and Evacuation Systems (alerts, warnings, shelters, advocates)	*50 (74%)*	*9 (13%)*	*9 (13%)*	**68**
8. Psychosocial Resilience (PS environment, PTSD, mental health services)	*49 (72%)*	*13 (19%)*	*6 (9%)*	**68**
9. Supply Chains; Logistics (Government, Businesses, Community Based Organizations, Non-Profit Organizations)	*49 (72%)*	*8 (12%)*	*11 (16%)*	**68**
10. Energy – Temperature Management (grid, solar, batteries, natural)	*53 (78%)*	*8 (12%)*	*7 (10%)*	**68**
11. Energy – Lighting and Cooking (grid-based, gas, generator, solar)	*51 (76%)*	*8 (12%)*	*8 (12%)*	**67**

12. Renewable Energy vs. Grid Energy (solar, wind, batteries)	*44 (66%)*	*16 (24%)*	*7 (10%)*	*67*
13. Education (primary, secondary, college, vocational trainings)	*36 (55%)*	*7 (11%)*	*22 (34%)*	*65*
14. Hygiene and Prevention (vaccines, social distance practices, biosecurity practices)	*35 (53%)*	*18 (27%)*	*13 (20%)*	*66*
15. Communication Systems (text, cell phone, smart phone, radio)	*47 (71%)*	*10 (15%)*	*9 (14%)*	*66*
16. Sewer / Septic Systems (human waste management, watershed protection)	*43 (68%)*	*16 (25%)*	*4 (7%)*	*63*
17. Solid Waste Management (landfill, composting, recycling)	*44 (68%)*	*14 (21%)*	*7 (11%)*	*65*
18. Transportation (walk, car, bus, bicycle, motorcycle, scooter, etc.)	*53 (80%)*	*2 (3%)*	*11 (17%)*	*66*
19. Community Security (conflict management, domestic violence, violence)	*46 (71%)*	*9 (14%)*	*10 (15%)*	*65*
20. Community Commons Areas (emergency shelters, recreation, schools, cultural center)	*50 (75%)*	*5 (7%)*	*12 (18%)*	*67*
21. Social Services (peer counseling, social work, information services, financial)	*48 (72%)*	*14 (21%)*	*5 (7%)*	*67*
22. Value Chains (circular economy, local businesses, jobs, finance)	*44 (68%)*	*16 (25%)*	*5 (8%)*	*65*
23. Climate Threat Mitigation and Transformation (ecological footprint, infrastructure hardening) add clearer definition	*46 (71%)*	*13 (20%)*	*6 (9%)*	*65*
24. Data and Information Management (computers, software, training)	*45 (70%)*	*10 (16%)*	*9 (14%)*	*64*

25. Emergency Management (police, fire, Emergency Medical System, first responder, community emergency response training)	*43 (68%)*	*10 (16%)*	*10 (16%)*	***63***
26. Management and Governance (dependent upon central government, informal/formal organization)	*45 (71%)*	*13 (21%)*	*5 (8%)*	***63***

Appendix B - Initial Ten Layers of the Florida Disaster Resilience Initiative

Layer 1: Serious Games, Mission-Critical Function Assessment, Participatory Budgeting, & Social Cohesion, Task Management

Layer 2: Florida Resilience Systems, Resilience Networks, & Resilience Capacity Zones (Collaborative Environment, Communications, and Data)

Layer 3: Florida Distributed Collective Intelligent Grid: Distributed Renewable Energy, Storage Systems, and Mesh Networks

Layer 4: Florida's Food Security, Permaculture Systems, Agroforestry, and Re-wilding of Ecosystems

Layer 5: Florida's Drinking Water, Sanitation, Riverine Systems, Ocean Resources, and Primary Ecosystem Services

Layer 6: Florida's Built Environment: Housing, Emergency Shelters, Resilience Hubs, EOCs, PODs, and Other Infrastructures

Layer 7: Florida MPHISE: Medical and Public Health Information Sharing Environment

Layer 8: Florida's ALADIN: Agile Logistics and Distribution Intelligent Networks

Layer 9: Florida's Transportation Systems

Layer 10: Florida's Dynamic Whole Ecosystem Simulation and Management

Appendix C – Glossary of Terms

Action Teams: groups of subject matter experts formed to make rapid progress on mission-critical gaps.

After Action Products: are deliverables that emerge out of a serious game exercise or a real world event.

After Action Report: is a written document that emerges out of a serious game exercise or a response to a real world event.

Disaster Resilience / Renewable Energy Resources: is a compilation of research and content that enables people to become more resilient under climate change conditions including through the use, for example, of distributed renewable energy resources.

Hotwash: During the process of generating the post-simulation "after-action report", all working group leads and other interested parties from the Serious Games will be asked to thoroughly review and vet specific recommendations produced by 20+ working groups (which will first be trimmed down and consolidated by a common editor). This systematic review of recommendations is known as a "hotwash". Simply put, it's a process via which stakeholders poke holes in the draft after action report and add comments to improve its value.

Human Security: are the non-military or non-police force conditions that protect the lives of individuals who affected by events of mass consequence, for example thousand that have been inundated or otherwise affected by climate disruptions.

Injects: are knowledge artifacts that are introduced into a serious game simulation as part of the game narrative to shape the action of the game environment (e.g., simulated newspaper pages)

Mission-Critical Functions: There are approximately 20 to 30 factors (e.g., water, food security, energy, sanitation, economy, employment, health, education, housing, evacuation, shelter in place) that determine if a community is trending toward greater vulnerability or improved resilience and sustainability.

Mission-Critical Gaps: are the missing elements between a community's requirements and its resources.

Nano Grid: a simple electrical system that generates and distributes its own electricity within a single location (e.g., house or business) independent of a central grid.

News Feed: a compilation of evidence-based content about current affairs.

Participatory Budgeting Process: empowers the community to directly request funds to address requirements to improve conditions in the community.

Post-Simulation Plenary: a meeting of the entire group coming out of the serious game exercise to, for example, identify mission-critical gaps that were revealed within the simulation game play.

Project Directory: is a list of content resources, human resources, and organizations that help rapid connection to key assets.

Review Panel: process to engage public officials (e.g., relevant county/municipal staff) and technical experts to formalize disaster resilience policies and plans directly benefiting the communities being discussed.

Science-based: Serious Game simulations will be based on the best of what science is telling us we need to address and will integrate the best learning we have from climate science, hydrology, geology, oceans research, social science, and health science.

Serious Games Exercises: By engaging simulations, working groups and a response panel, key gaps and solution sets to resolve those gaps can be identified using state-of-the-art tools and methods for collaborative decision-making and planning.

Soft Infrastructure: is human, behavioral & social elements that shapes a community's ability to improve its resilience and sustainability.

Solution Sets: groupings of solutions that resolve gaps.

Task Server: an application within a Resilience System that enables the tracking and management of tasks to their completion in a manner that assists community development.

Transformative Resilience: action of transforming underlying conditions such as reducing ecological footprints and moving from a petrochemical political economy to a green political economy is an example of "transformative resilience," which provide far better results for maintaining health, human security, and sustainability in the medium to longer term.

Appendix D - South Florida Disaster Resilience Initiative Action Teams

Resilience Network WhatsApp Groups

South Florida faces many challenges in protecting residents from imminent threats to climate change, particularly in our most vulnerable communities. The Florida Disaster Resilience Initiative (FL DRI) is endeavoring to provide capacities to prepare Floridians for the extreme effects of dangerous storms, heatwaves, or other climate change impacts. The FL DRI has organized Action Teams that function within self-triggering intelligent social networks to assist in community preparedness, response, recovery, mitigation, and sustainable development activities. The Action Teams utilize the South Florida Resilience System and its nested Resilience Network WhatsApp groups and other communication media in their efforts to crowd-source, gain situational awareness, and organize smart swarms to improve the resilience of the participating FL DRI communities.

Hurricane Irma proved that Florida residents, government and physical infrastructure are not prepared for a severe natural disaster. Therefore, neighborhood-specific preparedness plans must be created; storm ready communications systems, physical resources, flood protected infrastructure and storage for food and medicine must be planned. The FL DRI Action Teams are a key mechanism for helping Florida residents in participating FL DRI communities to prepare and respond.

Can you provide subject matter expertise and technical leadership?

We are building a network of citizens with specific subject matter expertise collaborating within FL DRI Action Teams, who can provide assistance locally before large-scale disaster relief becomes available. These "smart swarms" have now demonstrated their utility in extending and augmenting regional disaster response in coordination with existing disaster management, as they are today in the Hurricane Michael disaster areas in the Panhandle. Just as the cells of the body each possess the full genetic code, but differentiate as needed to form the interrelated systems of the human body, coordinated by the brain, neighborhood networks and subject matter networks are expanding within the FL DRI connecting thought the South Florida Resilience System <SouthFlorida.ResilienceSystem.org> and its Resilience Networks. This application of systems science to the health sector, security sector, and disaster management communities provides teams with the attributes of focus, agility, and convergence to markedly improve the resilience in South Florida, while hierarchical control systems are falling short of addressing all needs in our most vulnerable communities. If you have expertise in any of these areas, and are interested in increasing resilience in our most vulnerable communities, or have any questions, contact Joanne Perodn, Action Team Coordinator, joanne.perodn@gmail.com.

Below are listed the primary South Florida Disaster Resilience Action Teams. These FL DRI Action Team working groups also provide a great tool for community captains and their specific

community team members from Miami Dade and Broward County to augment their knowledge and resources during a disaster. There is often significant cross collaboration between Action Teams, given the complexity of rapid response during large and complex disasters.

We ask that all refrain from using these chat rooms for personal conversation. Communication should be limited to information relevant to the Action Teams activities.

To join an Action Team WhatsApp group, click on the desired link(s) below.

SFL DRI – Agile Logistics
https://chat.whatsapp.com/4D0ivAjzTBoDXamWg2bGXC

SFL DRI – Communication
https://chat.whatsapp.com/0gXSBVLGmPr7715m5xdeyD

SFL DRI – Emergency Housing
https://chat.whatsapp.com/2JtPn8osAkJ6oslycgXsMi

SFL DRI – Energy
https://chat.whatsapp.com/KcWRn25p4DoAEdyPFmCVhV

SFL DRI – Extreme Heat
https://chat.whatsapp.com/1GYkRM2IbzHLTJcW1KyKhj

SFL DRI – Food Security
https://chat.whatsapp.com/7PPV1YjuWRzHqetpjb0g8Q

SFL DRI –Fundraise/Budget
https://chat.whatsapp.com/LK5DaOLuXa4AutDg2P2mgx

SFL DRI_Water/Tanks/Toxin
https://chat.whatsapp.com/BSKeb4J0mpU5elPlJIBr1Q

SFL DRI – Legal
https://chat.whatsapp.com/CpY9M05o1In3soHZD8jLOw

SFL DRI – Liaison to EOC
https://chat.whatsapp.com/8kKDfTsRlQVDZaGhCWEGsp

SFL DRI –Liaising Elected Officials
https://chat.whatsapp.com/LPFPx1j6gfZ1dBhescGZZX

SFL DRI – Media Outreach
https://chat.whatsapp.com/FgpTzibFrUJLZUnNs7h7UQ

SFL DRI – Medical
https://chat.whatsapp.com/5ILZfQPS8rTIfWkSUs89JR

SFL DRI – Mental Health
https://chat.whatsapp.com/5SWBN4cf9T12sVsqcq0gYX

SFL DRI – Rapid Assessment
https://chat.whatsapp.com/3KhDQmMoqzA6g0IGJSrryy

SFL DRI – Sanitation/Sewer
https://chat.whatsapp.com/DdTo3bXWdUqCC0OqacNEeP

SFL DRI – Schools and Education (non-shelter activities)
https://chat.whatsapp.com/EJYl2hpTl10JfeaERFPsj9

SFL DRI – Transport/Evacuation
https://chat.whatsapp.com/LNjVb09qDYr9ChYJ4Cfax5

Appendix E - Picture of the 2018 Climate Resilient South Florida Serious Game Exercise

Appendix F - Climate Resilient South Florida Serious Games Exercise Agenda

Miami Dade College - Wolfson Campus
226 NE 5TH St, Bldg 3, Miami, FL 33132

Saturday, June 30, 2018
9 AM - 5:00 PM ET

Overview: Today's event is a disaster simulation exercise designed to help your community decide on the best ways to address critical needs during disasters. These critical needs include water, energy, transportation, food, and others. The Serious Games use known facts about the present, and on-going trends, to create possible real-world simulations of disasters. During the game, we will role-play community reactions and responses to the real-world disaster scenarios.

9:00 AM - 9:30 AM   Breakfast, Registration, and Networking
You will be assigned a table number based on your community. You may be assigned a specific role to play during the game.

9:30 AM - 9:45 AM   Meeting Introduction and Overview
The project and purpose of the Serious Games exercise will be presented, and there will be an Overview of the day's activities.

9:45 AM - 12:15 PM   Serious Game Simulation
- Each table will have a Facilitator and a Recorder present throughout the games.
- At the end of the game, all participants will meet to discuss the critical needs that came up in the game that they were unable to address, which are called "Mission-Critical Gaps."
- All participants decide on which of the Work Groups they will meet with for the Lunch and Work Group discussions. Working groups are groups that focus on specific topics, and are not based on the community you are from. For example, Work Group topics may be: Safety and Security; Emergency Management; Communications and Education; and Infrastructure and Basic Necessities.

12:15 PM - 2:30 PM   Lunch and Solutions Group Discussions
Facilitators and Recorders are assigned to each of the Work Group tables. Each Work Group table has 8-12 members.
- Facilitators lead the conversation about specific gaps discovered during the game, and provide solutions to resolve the gaps.
- Recorders document the discussion.
- Reporters report back to the Response Panel and the assembled participants in the Plenary Session

2:30 PM - 3:45 PM   Solutions Group Presentations to the Response Panel

This session includes all Serious Game participants working on solutions to identified mission-critical problems and gaps. The aim of this session is to elevate the communities' voices to decision makers and all assembled community members. Each Solutions Group gives a 5 - 7 minute report stating:
- The number of gaps and associated solutions they identified
- The 3 most important gaps they identified, and the associated solutions to be implemented to resolve the gaps

3:45 PM - 4:30 PM   Response Panel Comments
The purpose of this Response Panel is to begin a collaborative process between the communities and hierarchical institutions that represent them at the city, state and higher levels in regards to disaster management and resilience in South Florida. Panelists will be addressing the match between articulated solutions and available resources and capacities.

4:30 PM - 5:00 PM   Closing Statements: Unity of Effort and Next Steps

Appendix G - Sample of a Serious Game Newspaper Inject

Appendix H - Shared Governance

Lead Organizers

From its launch, the FL DRI strived to ensure that those most impacted not only would have a seat at the table but play a direct role in vision-making, governance, and participatory budgeting for the initiative within South Florida's most vulnerable communities. The FL DRI is organized to be governed by local resident-led leadership bodies at the multi-neighborhood and regional levels. No one organization's agenda would drive the shared planning process, but many organizations would be encouraged to actively support this planning effort as well to actively participate in convenings, recruitment efforts, fundraising, and advocacy.

From its launch, this Initiative strived to ensure that those most impacted not only have a seat at the table but played a direct role in vision-making, governance, and participatory budgeting for the Initiative. Engaged organizations have been encouraged to actively support the planning effort as well to actively participate in convenings, recruitment efforts, fundraising, and advocacy.

Action Teams: a network of citizens has been built and continues to expand with specific subject matter expertise. These teams organize themselves through intelligent social networks to provide assistance locally before, during, and after large-scale disasters. These smart swarms provide work force extension for relief, and extend and augment regional disaster response in coordination with existing disaster management. This network of experts is now building the potential to markedly increase resilience in our region through the FL DRI, the South Florida Resilience System and its Resilience Networks. For more information on the Action Teams and their intelligent social network infrastructure, see Appendix D.

Lead Organizers: local partner organizations were invited and participated in supporting the planning efforts and convening the communities under this initiative. To date, the following organizations and coalitions from the region have been actively engaged in this initiative:

- AFL-CIO South Florida
- Catalyst Miami
- CLEO Institute
- Community Justice Project
- Eco Tech Visions Warehouse
- FANM Haitian Women of Miami
- Make the Homeless Smile
- Miami Climate Alliance
- Miami Worker Center
- New Florida Majority
- WeCount
- Sant La Neighborhood Center

- Circle of Brotherhood School

Appendix I - Participating Communities / Neighborhoods

The FL DRI in the early stages of this initiative targeted 16 communities identified as vulnerable to climate threat. Requests were received by other communities who wanted to participate in this initiative. Two additional communities, Shorecrest and Dunbar, were added bringing the total number of communities to 18.

This table displays the extent of the FL DRI geographical reach as the program progressed.

Project Stage	Cities/Neighborhoods By County
Targeted Communities	• **Broward County:** Hollywood, Sistrunk, other areas of Fort Lauderdale, Lauderhill, Lauderdale Lakes • **Miami Dade County:** Allapattah, Liberty City, Little Haiti, Overtown, Little Havana, Richmond Heights, Perrine, Goulds, Florida City, Shorecrest, SW Homestead • **Lee County:** Dunbar
Community Forum	• **Broward County:** Liberia, Dania, Hallandale, Lauderhill Lakes, Ft Lauderdale, Wilton Manors • **Miami Dade County:** Allapattah, Biscayne Gardens, Brownsville, Coconut Grove, Cutler Bay, El Portal, Florida City, Golden Glades, Goulds, Homestead, Ives Dairy, Kendall, Liberty City, Little Haiti, Little Havana, Miami, Modelo, Naranja, North Miami, North Miami Beach, Opa-Locka, Perrine, Princeton, Redland, Shorecrest
Serious Game Event	• **Broward County:** Lauderdale, Lauderdale Lakes, Lauderhill, Liberia • **Miami Dade:** Aventura, Coconut Grove, Doral, Fontaineblau, Goulds, Ives Dairy, Key Biscayne, Little Haiti, Little Havana, Miami Beach, Miami Gardens, Miami Lakes, Opa-Locka, Overtown, Redland, Shorecrest, South Miami, West Little River, Wynwood • **Other:** Cape Coral, Dunbar, Lehigh Acres, Orlando

Appendix J - Community Emergency Operation Centers

THE COMMUNITY EOC: OVERVIEW

As the Category 4 rated Hurricane Irma approached Florida, local community organizers in Miami-Dade -- with early support from disaster response professionals -- came together to create a network of *Community Emergency Operations Centers (Community EOCs)* to "serve low-income communities of color in the wake of the storm and beyond, and to aid local trusted community-based partners and community members in addressing threats to an equitable response." This network of Community EOCs was first launched in Miami Dade and Broward counties and then, as the storm tracked west and north, the model was quickly replicated to varying degrees of success in 10 cities across the state.

The *Hurricane Irma Recovery Fund* housed at the Miami Foundation provided reimbursements for purchases made by volunteers and organizations participating in Community EOC recovery efforts. The *South Florida Resilience System* (mainly operating via WhatsApp) provided a communications and information-sharing hub for Community EOC volunteers and the communities they served. The *Irma Community Needs Survey* documented the experience of communities served by the Community EOC network.

After the Community EOC network closed down operations in early October, nearly 75 volunteers, community members and staff from lead organizations across the state came together to debrief what was learned and directly experienced in forming and strengthening the Community EOCs in the wake of Hurricane Irma. The learning and strategic planning from these sessions led to the design of the *Florida Disaster Resilience Initiative* -- a multi-year, multi-region program that launched in February 2018 to begin to address the many weaknesses, strengths, opportunities and threats to an equitable response that were identified during debrief sessions.

COMMUNITY EOC: THE MODEL

In building out the statewide network of Community EOCs, the model was articulated in the following way: "Find a warehouse with a forklift and 5+ trusted community-based organizations and we will bring you into the statewide Community EOC network -- which will enable you to receive a portion of the significant aid coming in from Houston and Chicago". Though the

promised aid never arrived (since roads were backed up and it then was diverted to the Keys and Puerto Rico) and though forklifts were largely unnecessary, this articulation of the model proved to catch on as Community EOC satellite operations were launched in five additional locations in Miami Dade and then soon after in Naples, Tampa Bay, Orlando, and Jacksonville.

While the "warehouse plus trusted community based organizations" components formed the backbone of the model, the following core elements were essential to the success of the Community EOC network:

Community-based organizations and networks of organizations: The Community EOC was built within and across the following networks of social justice and community-based organizations: the Miami Climate Alliance, the Social Justice Table, the Statewide Alignment Group, the Florida Rights Restoration Coalition, and the Florida Immigrant Coalition. Community EOCs in Miami Dade were formed with significant leadership from individuals and organization staff associated with the following specific organizations that with frontline communities: Catalyst Miami, Centro Campesino, The CLEO Institute, Community Justice Project, Dream Defenders, Eco Tech Visions Warehouse, FANM Family Action Network Movement (formerly FANM Haitian Women of Miami), Make the Homeless Smile, The New Florida Majority, Urban Paradise Guild, We Count, and others -- all of which are founding members of the Miami Climate Alliance. Many area churches provided support and assistance.

Disaster response organizations and networks: From the outset, the Community EOC program was created with support, strategic guidance, and supply chains provided by individuals and organizational staff associated with Third Wave Volunteers, We Do Better, HARP, and the South Florida Resilience System -- each of whom has extensive on the ground knowledge of working in disaster response and recovery in the United States as well as many other regions of the world. As the storm tracked west, most of these individuals shifted focus to the Keys. Later many of these individuals/organizations staffed and supplied the Miami-based post-Maria response in Puerto Rico and the Caribbean via the hubs set up for this purpose at the MANA warehouse in Wynwood and the Magic City Warehouse in Little Haiti.

Incentives were key: Promise of supplies coming from Houston and Chicago (which never arrived) provided significant incentive to onboard within the statewide Community EOC network. Monetary incentives remained central to the continued success of the model as Community EOC lead organizations and individual volunteers who made recovery-related purchases were encouraged to apply for reimbursements from the $1.5M [Hurricane Irma Recovery Fund](). After these initial reimbursements were made, this fund is now being used by participating organizations within the Florida Disaster Resilience Initiative to prepare high risk communities for future extreme weather events. A significant portion of these funds is being awarded directly to community-based organizations with deep ties to frontline communities to help build their capacity to respond to those most in need before, during, and after storms.

Grassroots Coordination and Communications Infrastructure: During Hurricane Irma, Community EOC leads provided up-to-the-minute information to area residents via email, social media and state-wide news outlets, allowing the network to garner 300 community volunteers in

Miami-Dade alone. Prior to Irma making landfall, we had a grassroots communications network in place that operated via Facebook and WhatsApp, and that were augmented by text-message-based voter engagement platforms (such as NGP VAN Every Action and Nationbuilder). When power was out, daily coordination phone calls at set times for different regions and different teams were essential. These coordination phone calls remained essential building blocks for the network well after power was restored.

Some Community EOC leads had extensive experience inside of County government. With their leadership and insight, volunteer communicators were able to generate a wide variety of public information resources that were shared across virtual networks. Where it was helpful, materials produced by local government and media outlets were disseminated via these same channels. Supply requests were also made using WhatsApp via a copy-and-pasted inventory request template. And all platforms were two-way with community members responding to rapidly unfolding information. It was critical that this essential information and crowdsourcing of information was provided across multiple social media platforms and augmented by text- and email-based dissemination via voter engagement platforms.

FURTHER READING:
- WLRN
  http://www.wlrn.org/post/informal-emergency-ops-center-looks-volunteers-help-hurricane-prep-low-income-residents
- USA Today
  https://www.usatoday.com/story/news/nation/2017/09/08/florida-volunteers-step-prepare-hurricane-irma/646887001/
- Sun Sentinel
  http://www.sun-sentinel.com/local/broward/fort-lauderdale/fl-esb-grassrootaid-0920-20170919-story.html
- Miami New Times
  https://www.miaminewtimes.com/arts/hurricane-irma-disaster-relief-organizations-staging-operations-in-miami-9661744
- Huffington Post
  https://www.huffingtonpost.com/entry/south-florida-immigrants-and-communities-of-color-still_us_59c3f275e4b0ffc2dedb5bbc
- WLRN
  http://www.wlrn.org/post/after-hurricane-irma-food-insecurity-miami-dades-poorest-communities
- Miami Herald https://www.miamiherald.com/opinion/op-ed/article176697736.html
- USA Today
  https://www.usatoday.com/story/news/nation/2017/09/20/frustrations-boil-over-miami-following-hurricane-irma/685262001/

Appendix K - Neighborhood Resilience Hubs

Resilience Hubs are multi-purpose community centers which act to improve the resilience of community members. Some Resilience Hubs are only pop-up centers that are only available under emergency conditions. Other more formal Resilience Hubs are being developed to be available in normal conditions and in emergencies. The formal Resilience Hubs may be involved in preparing for as well as providing special services during emergencies in which residents are suffering from lapses in mission-critical functions within the neighborhood. Community captains, Action Team members and other staff within the Resilience Hubs are often actively engaged in crowd-sourcing information about problems emerging within the neighborhood. They are also engaged in communicating these challenges to teams in their Community Emergency Operations Center (CEOC) and to the Community Chair representative in the County EOC. South Florida Resilience System and Resilience Network nodes within the Resilience Hubs play a key role in the South Florida ALADIN (Adaptive Logistics and Distribution Intelligent Network) as far forward storage and distribution of vital goods, such as food, water, clothing, hygiene materials, first aid.

South Florida DRI participants defined their understanding of Hubs as a meeting central location where they could access resources such as information, food and water, medical services, among other.

The following locations have been identified as potential pop-up Resilience Hubs during a disaster.

Proposed Hubs, Storage Locations, Needed Supplies by Communities

Community	Resilience Hubs	Storage	Supplies	
North Miami	SANT LA	SANT LA Notre Dame d'Haiti Holy Family Saint James St Mary's Cathedral	Water Juice Evaporated Milk Coffee Sugar Cereal Bread Spaghetti Sardines Peanut Butter First Aid Batteries Flashlights Portable stove Diapers	Sanit Plate Solar Solar Wate Tow Napk Toile Diap Insta Bedd Matt Radi Baby
South Miami: **Liberty City**	TACOLCY Center Miami Worker Center	African Heritage Cultural Center	Water Radio	Beds Dry/C

	Liberty Square Community Center & Alonzo Kelly Park All the churches Caleb Center	DA Dorsey Miami Worker Center Hosana Charles R Drew Miami Children's Initiative Jessie Trice Gwen Cherry Park	Generators Batteries Medical Supplies Ice Baby Formula Camp Food Bleach Cleaning Supplies Mental Health Care Dry Foods (rice, beans)	Pean Diap Toile Femi prod Uten Plast Solar Solar
Central Dade: Brownsville	NANA All churches	Reuss Park NANA Hampton House Liberty City CALC & CAHS Jessie Trice Olinda Park	No Data	
Central Dade: Little Haiti	Notre Dame Church Eastside NET Little Haiti Cultural Center Little Haiti Soccer Park Edison Senior High St Mary School FANM Haitian Women of Miami Athalie Range Park Carrie P Meek Technical Tabernacle Church	Notre Dame D'Haiti Libraries (Lemon City, Edison) St Mary Catholic Church Emmanuel Church Grace United Little River Library Tabernacle Church	Water Radio Generators Flashlights Batteries Medical Supplies Ice Baby Formula Camp Food Bleach Cleaning Supplies Mental Health Care	Dry Beds Dry/ Pean Diap Toile Femi prod Uten Plast Solar Solar
Central Dade: Allapattah	YMCA-Allapattah Library	Wynwood Community Action Human Services	No Data	
South Dade: Homestead	Bridge to Hope in Naranja Branches We Count CHI Child Development Centers Chapman Partnerships Centro Campesino Coalition of Farm Workers Familia Inc Farmshare FL Farmworkers	Salvation Army Farm Share	Water Generator Food Solar flashlights Solar refrigerator/freezer	

	Association Food Pantries Food Distribution Centers Group of Latino Pastors Mujer Mexican American Council SW Pastor's Alliance Haitian Pastors' Association Pastoral Alliance (Richmond Heights, Perrine, Goulds) Sacred Heart St Martin St Annes Mission Salvation Army South Miami Heights Haitian Church in Perrine South Dade Ministerial Alliance First Baptist Church Mormon Churches Mosques Florida Farm Workers Association 3 Virtues Redland Christian Migrant Association (RCMA) United Methodist		
Central Broward	Piney Grove Baptist Church North Gate Neighborhood Park Art House AOH Theme Park West Broward Church of God Mosque 82 Franklin Park Mosque L.A. Lee	Step Up AOH Theme VT Park on Broward Blvd The Elk Ft Lauderdale Community Center (NGO)		No Data

In addition to the pop-up Resilience Hubs, Catalyst Miami is setting up 5 Resilience Hubs with the City of Miami.

Appendix L - Contact Information Regarding This Document

The information in this document is coming from hundreds of voices stemming from 18 communities in South Florida. These are largely communities of color that are at high risk of being severely impacted by climate change. In many senses, elements of these communities are disenfranchised and have been trending toward high vulnerability due to gentrification, unequal treatment by government as well as economic, social, and market forces.

The situational awareness provided in this After Action Report as a result of the Phase I, Stage 1, Layer 1 Florida Disaster Resilience Initiative (FL DRI) activities is only the beginning of reversing the negative trends in South Florida's most vulnerable communities and neighborhoods under climate change and broader global changes. However, these Phase I efforts are a good start within the five phase, ten layered FL DRI initiative. To understand more about FL DRI Phase I, Stage 2, please review the Stage 2 report on FL DRI community social cohesion, confidence, and competence in the South Florida Resilience System at: xxxx   To understand more about FL DRI Phase I, Stage 3 findings, please review the Stage 3 planning report in the South Florida Resilience System bridging Phase I activities to Phase II preparedness, response, relief, recovery and sustainable development activities during the 2019 and over the next five years at: xxxx

For those that would be interested in more information about this After Action Report or the Florida Disaster Resilience Initiative, please contact:

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Catalyst Miami	Mision Boricua
Circle of Brotherhood	NAACP
Circle of Brotherhood School	New Florida Majority
CLEO Institute	Power U for Social Change
Community Forum Foundation, Inc	Progressive Jewish Action - South Florida
Community Justice Project	Sant La Neighborhood Association
Council on American Islamic Relations - FL	Sea Level Solutions Center, FIU
Dream Defenders	SEIU FL
EcoTech Visions Warehouse	SMASH
Faith in Florida	The Confidante
Family Action Network Movement (FANM)	Third Wave Volunteers
Florida Immigrant Coalition	Unitarian Universalist Justice Florida
Florida International University	Unite Here - FL
Florida Rights Restoration Coalition	WeCount
Florida Student Power Network	Workers Rise for Climate Justice Coalition
Make the Homeless Smile	
Miami Climate Alliance	

Special Thanks to key community and government leaders:
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Jane Gilbert, Chief Resilience Officer, City of Miami
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We owe much gratitude to all members of the communities who have been engaged in Phase I of the FL DRI, including the kickoff meeting, the community forums, and the Serious Game Exercise event. You have contributed in so many direct and indirect ways to your communities through the FL DRI.

Broward County
Dania
Ft Lauderdale
Hallandale
Hollywood
Lauderhill
Lauderdale Lakes
Liberia
Sistrunk
Wilton Manors

Miami-Dade County
Allapattah
Aventura
Biscayne Gardens
Brownsville
Coconut Grove
Cutler Bay
Doral
El Portal

Florida City
Fontaineblau
Golden Glades
Goulds
Homestead
Ives Dairy
Kendall
Key Biscayne
Liberty City
Little Haiti
Little Havana
Miami
Miami Beach
Miami Gardens
Miami Lakes
Modelo
Naranja
North Miami
North Miami Beach
Opa-Locka

Overtown
Perrine
Princeton
Redland
Richmond Heights
Shorecrest
South Miami
SW Homestead
West Little River
Wynwood

Lee County
Cape Coral
Dunbar
Lehigh Acres

Other
Orlando