

Embracing the Challenge of Climate Education and Engagement

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Founded in 2010, the CLEO Institute (CLEO) exists to build climate literacy and spur climate action. Nearly a decade ago, the data were alarming and there was a screaming need to build climate leadership by providing engagement opportunities. So CLEO was launched. Today, as the only nonprofit, nonpartisan organization based in Miami that is exclusively dedicated to climate change education and engagement, CLEO is viewed as the go-to regional source for credible, vetted climate science and expert insights into a variety of fields impacted by climate.

CLEO approaches climate literacy and advocacy in an interdisciplinary, holistic manner that addresses both adaptation (i.e., responding to the impacts of climate change) and mitigation (i.e., addressing root causes of climate change) with equal intensity. The shrinking time-frame predicted by recent reports to mitigate worst-case scenarios underscores the importance of this work.¹ Given their exposure to climate-related events, the Greater Miami and Southeast Florida regions serve as a climate laboratory for ingenuity and problem solving. Working with climate scientists and scores of governmental, business, academic, and community leaders, CLEO creates multiple access points to engage diverse audiences in understanding the climate crisis and to embrace scalable solutions.

During its first six years, CLEO's leaders changed the institute's tagline three times. These refinements trace the organization's education and engagement evolution. First, in 2010, "amplifying the climate conversation;" then, "bridging the divide between science and society on climate issues;" and now, "driving climate action through education and engagement." Despite its evolution as an organization, CLEO remains nimble in program and event design, partnering with many to offer a plethora of opportunities for intergenerational and interdisciplinary audiences to engage.

Engaging the Disengaged

Early on in this effort, it became clear that a significant majority of the 2.7 million people living in Miami-Dade County could not begin to articulate even a basic understanding of what climate change is, nor explain climate change's causes, effects, or solutions. Determined to change this, CLEO worked furiously with local scientists, partners, and educators to simplify the science, highlight a broad range of climate disruptions, identify solutions small and large, and engage a disengaged public. Informed by current reports and data put out

¹ U.S. Global Change Research Program (USGCRP). *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* (Reidmiller, D.R. et al. [eds.]) (2018). doi:10.7930/NCA4.201

by the National Oceanic and Atmospheric Administration (NOAA), National Aeronautics and Space Administration (NASA), the U.S. Global Change Research Program (USGCRP), National Climate Assessment (NCA), and the Intergovernmental Panel on Climate Change (IPCC), CLEO began hosting forums and movie screenings with panel discussions; interactive solution summits and workshops; and presentations and classes simplifying climate science for a lay public. And it targeted every audience, top down and bottom up, simultaneously.

When young professionals were not showing up, CLEO created “Wine & Cheese—Ask the Experts Forums” to lure them. When the elected officials were too busy, they crafted intimate invitation-only Mayors’ Roundtable Luncheons, and the mayors showed up. When teachers across disciplines wanted help, a CLEO Teachers Network was formed to host symposia and promote climate science across the pre-K-12 curriculum; and when young people wanted to engage, CLEO created the Generation CLEO (GenCLEO) Youth Movement. Then, to develop more speakers, it built a CLEO Speakers Network and partnered with climate scientists and communicators to help coach trainees. CLEO also successfully began partnering with businesses and municipalities to help integrate climate action in their sustainability planning. When CLEO leaders realized that Miami’s underserved and frontline communities were not engaging, they aggressively sought funding to reach into the nooks and crannies of our vibrant but vulnerable communities.

A Pilot Project in Underserved Communities

Building community resilience and adaptive capacity requires an informed, engaged, and prepared public that is included as stakeholders during the planning phases. CLEO’s Community Outreach Pilot Project recognized the importance of including communities of color in understanding climate causes, impacts, and solutions, and welcoming their contributions to planning efforts. In 2015, CLEO received support for this Outreach Project from the Miami Foundation, and targeted four communities with socioeconomically vulnerable residents. Two were low-lying Miami-Dade neighborhoods, Shore Crest and Sweetwater, and two were on higher ground, Liberty City and Little Haiti. More than 1,500 people were engaged during the seven-month pilot, primarily residents living in areas with high levels of social vulnerability and high exposure to the impacts of climate change.

In each community, the project had three phases and all events were either hosted or facilitated by local partners in conjunction with CLEO. The first phase consisted of informal listening sessions with the community, including residents, local leaders, and business owners, to gauge interest, understand concerns, and help shape a town hall agenda. CLEO included its academic and social justice partners in these listening sessions. Then, for phase two, CLEO co-convened a town hall with residents, city and county staff, scientists, local business, elected and community leaders, and partners to discuss concerns and solutions. Lastly, CLEO held interactive Climate 101 Workshops for the community, including climate scientists to answer additional questions.

Town halls revealed the following immediate climate concerns among underserved populations:

- Emergency and post-disaster preparedness;
- Climate gentrification by developers seeking high ground in Little Haiti and Liberty City;
- Tidal flooding or sunny day flooding in low-lying areas in Sweetwater and Shore Crest;
- Climate education and engagement for more information and a seat at the table for resilience planning; and
- Heat and health vulnerability and how best to minimize risk to under-resourced populations.

Conversations also highlighted the importance of understanding the roles of government, business, and community, as well as the role of individuals, in living more sustainably. CLEO advanced its intended goal of empowering future climate educators through the CLEO Speakers Network. Local residents interested in becoming climate speakers have already begun their training and some have given their own climate change outreach presentations—most notably, Valencia Gunder, whose powerful voice now also speaks to climate justice. Thus, the pilot has been expanded and reshaped over the years. Today, CLEO continues to provide participants unique opportunities to: (i) make connections between the many causes and effects of climate change; (ii) recognize multiple approaches to addressing solutions; and (iii) develop the ability to advocate for climate action.

The Reality at Ground Zero

It used to be sea level rise that spurred people to pay attention to climate change. Now, it's climate gentrification. Undeniably related, the two are the most commonly identified reasons researchers and reporters are visiting the region. Climate gentrification is now a more common term, as locals confront the reality that is the limestone ridge running a bit diagonally and roughly north/south through a chunk of Miami-Dade County. This ridge, with elevations higher than 18 feet above sea level in some parts, is akin to the Rocky Mountains in South Florida where the state is as flat as a pancake. The ocean and bay encroach to the east, the everglades to the west, and ground water, especially during king tides, creeps up through porous limestone bedrock in all lower-lying areas.

When Miami was first being developed, they carved the railroad tracks on that limestone ridge. This is where the socioeconomically vulnerable populations settled, forming communities like Overtown, Liberty City, and Little Haiti. Today, residents there are claiming an accelerated rate of gentrification and describe the, at times, predatory nature of prospective buyers and developers. Many locals still do not understand the implications of higher elevation and its link to sea level rise and now, more frequently, to property values. CLEO uses topography maps and Florida International University's Eyes-On-The-Rise App as tools to show Miami-Dade's elevation and inundation visuals at two, then four, then six feet of

sea rise. Many residents in these high elevation neighborhoods are still completely unaware of this risk. It is true that the area was already gentrifying, as the “artsy” Wynwood District expands northward, but the rate of gentrification in these higher ground areas seems to be increasing aggressively and is now supported by empirical scholarly evidence.²

Over the last five years, there have been major climate-related budget issues, publicly discussed at the City of Miami and at the Miami-Dade County level. Local residents are realizing that reality now includes living with sea level rise; funding million-dollar pumps to keep streets dry during high tides; elevating roads; experimenting with green infrastructure; and worrying about saltwater intrusion and freshwater vulnerability. Developers too must know, although some insist that elevation is not their driving force. Regardless of weighted priorities, communities are increasingly seeking better information about this shift in population. For instance, Florida International University professor, Hugh Gladwin, has been mapping land ownership patterns and GIS elevations in some of these vulnerable high ground areas. Professor Gladwin represents just one of many local subject matter experts whose research is advancing CLEO’s climate communications mission.

But what does all of this mean for the people in Miami who live on the ridge? How do they cope? Will they have to move? Would they be inclined or are they able to relocate ninety minutes from where they work? Abandon a community, a neighborhood, a sense of place they helped build—a place they stuck with during the worst of times? At a Liberty City climate listening session several years ago, we asked city and county representatives how we could alleviate the crisis for vulnerable residents who fell behind on mortgage or tax payments. There were no easy answers, although some suggested a short-term, interest-free pool of funds to help the working poor when needed. Other ideas for short-term wage substitution include disaster-response training for temporary employment. After Hurricane Irma sideswiped Miami in 2017, thousands of people went without work and without paychecks for weeks. That is a game changer for the poor and the working poor. Disaster-driven unemployment causes a variety of ripple effects, including premature mortality. People must decide between paying the air conditioning bill and living through extreme heat made only worse by high humidity levels.

At a Climate Town Hall in Little Haiti a few years ago, a young woman agreed that our nights were warming. She relayed that when she opened her windows a little at night to let in some cool air, there was no cool air anymore. When asked: if she had no air-conditioning, then why were her windows closed? She explained she didn’t feel safe leaving them open at night. In imagining thousands of hot homes and apartments closed-up in a warming world, CLEO has started pitching a public-private partnership possibility to design and install solar powered air-conditioning wall-units in at least one room of every home.

2 Keenan, J.M., Hill, T., and Gumber, A. “Climate Gentrification: From Theory to Empiricism in Miami-Dade County, Florida,” *Environmental Research Letters*, 13(5) (2018), 054001. doi: 10.1088/1748-9326/aabb32

Solutions beg for ingenuity that could well become job creators. Indeed, the disruptions we know of that are already here and those that are coming are threat multipliers for people without safety nets, the poor and the working poor (more than 58 percent of the 2.7 million people living in Miami-Dade County).³ CLEO continues to expand its work in these under-resourced communities and insists that climate science and climate justice lenses are included when addressing solutions to climate disruptions. The science grounds the climate fight as urgent and long-term. The justice lens warns about the threat multiplier the climate crisis is becoming to millions of already vulnerable populations.

Partnerships and Expanding Audiences

CLEO has embraced partners that help connect the dots between climate change and vulnerability related to changes in heat, health, food, water, local economics, and extreme events. The success of CLEO's work includes harnessing the support of several partner institutions to inform, host, and promote events and initiatives. Locally, these include: University of Miami's Geology, Communication, Law, Architecture, Engineering, and Civic Engagement departments, as well as its Rosenstiel School of Marine and Atmospheric Sciences and Corporate Institute for Marine and Atmospheric Studies; Florida International University's Department of Biology, Journalism and Communication, and its Sea Level Solution Center; Miami Dade Colleges; Vizcaya Museum and Gardens and Pinecrest Gardens; and the Miami Climate Alliance, a group of climate justice-centered organizations, co-founded by CLEO and including New Florida Majority, Miami Workers Center, Catalyst Miami, and dozens more.

Miami now has many of the moving pieces needed to spur real action: informed leaders, climate scientists, entrepreneurial hubs, and a readiness level like no other, as climate impacts have quickly become real for its residents. Despite recent dire reports, locals say they want to stay in South Florida, as safely as possible, for as long as possible. Thankfully, many individuals, organizations, and foundations are seeing and seizing opportunities to innovate in the region, and they are welcomed. Over the years, CLEO and city, county, regional, and community climate leaders have worked with forward thinking climate-focused teams at the Urban Land Institute, Van Alen Institute, Harvard University Graduate School of Design, Association for Preservation Technology, Center For American Progress, Union of Concerned Scientists, World Resources Institute, Natural Resources Defense Council, The Nature Conservancy, and others, to educate and engage more audiences, assess large amounts of data, offer solutions, and promote innovative re-design. The collective effort is impressive.

Education is power, and in the case of climate change education, information allows people to engage, advocate, and contribute to solutions. There was a clear request by the

³ United Way. "Alice (Asset Limited, Income Constrained, Employed) Study of Financial Hardship" (2017), available at https://unitedwaymiami.org/wp-content/uploads/2014/11/17UW-ALICE-Report_FL-Update_2.14.17_Lowres.pdf.

region's most vulnerable residents to be "at the table" and included as stakeholders during resilience and adaptation planning. As CLEO staff and leadership expand, current efforts are broader and bolder. The Empowering Resilient Women and Girls initiative reaches into more under-resourced neighborhoods like Overtown and Allapattah, among others, convening workshops, under the banners of WE learn, WE Prepare, WE Act, and WE Lead. This is inspired by the research findings in the best-selling book, *Drawdown: The Most Comprehensive Plan Ever Proposed to Reverse Global Warming*, where educating women is listed in the top ten solutions.⁴ CLEO continues its work with all current audiences and is planning to further increase outreach to faith-based groups, health care professionals, elected leaders, media and meteorologists, school systems, homeowner associations, and young professionals.

Conclusions

CLEO has grown from a small staff of two to a solid staff of seven, plus interns, and it is scaling its work and reach year-by-year. Partners and volunteers grow each day and include a stellar expert advisory council who help inform the work and shape strategy. There are now calls for CLEO trainings, workshops, and forums throughout and beyond the state of Florida, and the formation of CLEO chapters around the country could become a reality. Ultimately, CLEO will expand its presence in other cities that are ready to engage diverse stakeholders in advancing community resilience, adaptive capacity, and climate leadership. Mentoring them will become part of the institute's work as it shares best practices and lessons learned.

What we have learned already is that at least some underserved communities are now at the table and able to advocate in their own interests; that Chambers of Commerce are re-defining resilience and adaptation in advancement of a stable and prosperous economy and work force; that K-12 educators are now weaving climate across the curriculum; that artists are provoking audiences and conversation; that governments are mapping vulnerability and raising funds for adaptation efforts; that cities, counties, schools, and businesses are measuring and lowering carbon footprints; that young people are mobilizing, finding and sharing their voices and their outrage at inaction; and most importantly, that dismissing or denying the science of climate change is much less acceptable, as climate voters become more numerous, more informed, and more vocal.

These successes will only accelerate if we remain committed to inviting, including, and making room at the table for all segments of society to engage in understanding climate science and to embrace solutions that allow for the adaptation to changes we cannot stop and the mitigation of the causes of a warming world.

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⁴ Hawken, P. *Drawdown: The Most Comprehensive Plan Ever Proposed to Reverse Global Warming*, Penguin Press (2017).