A Modest Proposal for Climate Resilience, Sustainability, and Social Justice at Florida's Largest Metropolitan University

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Source: Wikimedia

Tampa tends to land on two kinds of lists these days. The first is the fun quality-of-life rankings of most U.S. metros: best places to retire; best cities for staycations; best cities for celebrating St. Patrick's Day. The second is the scary hurricane list [where] Tampa's worst-in-the-nation vulnerability to hurricane-driven storm surge made news a year ago and again in June.

– Richard Danielson, Tampa Bay Times (2016)

The Urgency of Now

Record floods, wildfires, heatwaves, intense thunderstorms, and sea level rise across the world prove that the climate crisis is no longer a vague or distant concept. The University of South Florida (USF) which is the size of a medium U.S. city will have to face a series of emerging risks to its strategic operations, infrastructure (notably the new Medical School and related facilities on the Downtown Tampa riverfront), and its capacity to provide services and products to the Tampa Bay region (valued at $4.4 billion annually) from sea level rise and extreme weather events. Located in one of the fast-growing city-regions in the U.S., the entire USF community is exposed to catastrophic disruption, with the surrounding impoverished community expected to suffer disproportionately from the problems caused by climate and environmental disruptions.

What's To Be Done? Building an Environmental Justice Frontline University

Institutional Commitment to Sustainability. Climate change is more than just an existential threat. It is also an opportunity for a preeminent research and educational institution like USF to develop a comprehensive sustainability mission through innovations in its operations, education, research, and community outreach. Such a mission should at a minimum involve: (1) a coherent vision but decentralized charters and implementation across USF's "one university geographically distributed" campus system. Decentralization enables faster response times, increased opportunities to generate and test new ideas, and encourage more efficient use of resources; (2) comprehensive asset mapping, gap assessments, and tracking dashboards; (3) support of community- and student-engaged transdisciplinary research in core sustainability areas (e.g., energy use, waste streams, emergency planning and adaptation, etc.); (4) well-planned, long-term investments in energy efficient technologies, e.g., HVAC software, which can be initially expensive but result in dramatic cost savings over the long run; and (5) a broad view of 'sustainability' that goes beyond energy, recycling, and waste management by including good health and well-being, affordable clean energy, and social and economic justice.

Curricular Innovation. USF is well positioned to experiment and role-model adaptation and mitigation strategies on behalf of Tampa Bay, if not the entire state of Florida, by developing minors and/or certificate programs that

promote sustainable business models, products, and services for the university and community (e.g., adding solar, switching to electric vehicles, measuring greenhouse gas output and waste streams, etc.) and facilitating how to commercialize them on behalf of community empowerment. USF can also encourage students to promote environmental, social, and economic sustainability in their personal and professional lives through either core or capstone environmental literacy courses in the undergraduate general curriculum. Such courses would ensure that students, who include many decision-makers of the future, fully grasp the consequences of the climate crisis, including the social consequences, and "meet their social mandate to help create a vital, ethical, and prosperous civil society" (**https://secondnature.org/signatory-handbook/the-commitments/**).

Transdisciplinary Research Networks. Responding effectively to climate change requires institutional structures that match the scope and complexity of the problem at hand. Within a university, this means more interconnected and versatile networks of researchers that combine knowledge domains and skill sets in novel ways to address real-world problems. Because boundary-crossing research is constrained by high entry costs (i.e., it is arduous, time consuming, and risky), the university must facilitate and incentivize these efforts.

Some of the research networks needed to do transdisciplinary climate research are already being built at USF. For example, the recently established *Institute for the Advanced Study of Culture and the Environment* (IASCE) is steadily being recognized as a centralized hub for interdisciplinary research networks to meet in short-fuse workshops; technical training; distinguished speaker series; and hackathon competitions. Currently, IASCE is home to three specialized faculty working groups that work on issues largely centered around sustainability and resilience (disease, conservation, climate, society). The working groups include roughly 120 researchers from colleges across the Tampa campus (i.e., Arts & Sciences, Engineering, Health, Business, Moffitt Cancer Center, Contemporary Art Museum), and showcase a range of faculty projects and emerging interests.

Transdisciplinary Research Processes. Among the most successful models for facilitating transdisciplinary research supported by IASCE is the hackathon competition (**https://ncbi-codeathons.github.io/**). Hackathons consist of diverse teams of researchers working on real-world problems to develop proof-of-concept prototypes. Teams consist of 5-10 researchers that typically include data scientists who can manipulate and analyze Big Data (for example about smart cities, remote sensing, disease spread, and social media); social scientists with expertise in complex social systems, ethics, biases, and storytelling so questions and solutions are framed properly; and community stakeholders from government, industry, and the general public to ensure buy-in from end users. Knowledge domains and skill sets can be reorganized rapidly, again and again, to tackle new problems. Most importantly, the hackathon model overcomes many traditional institutional barriers to innovation in research by: (1) providing time-limited spaces that allow faculty to explore collaborations outside the scope of their regular work and/or to make progress on projects that would otherwise languish due to a lack of time or expertise; (2) creating new expertise networks that may continue after a hackathon is over; and (3) having built-in activities (beta testing research tools and models) to bridge research, community, government, and industry barriers. With the right nurturing, such events could catalyze transformative changes across USF's climate change and sustainability research community, educational mission, and civic actions.