Integrating Information Flows and Supporting Communities as Decision-Makers in Response to Acute and Chronic Stressors

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Project Overview

With residents of the Dove Springs neighborhood of Austin (TX) and our community partners (Go! Austin/Vamos! Austin, the City of Austin, and St. Edward's University), we identified a community need for an online interface where residents can:

- access information to address acute and chronic stressors (e.g., flooding, food insecurity) &
- share information useful for developing more effective stressor-related policies and programs (e.g., identifying areas in need of more shade to address heat events).

Expected Outcomes and Project Activities to Date (9.1.20 – 8.31.22)

- Outcome: community-led, innovative technological interface to help residents prepare for acute stressors & respond to chronic stressors. *Sites & Stories (portal) template improved; Climate Navigator & City/NGO staff interviews conducted & transcribed/translated/analyzed; Portal Design Workshops & survey conducted; Data shared with Sites & Stories team.*
- Outcome: a safe, secure,& private technological system to collect, store, & analyze local knowledge. *Will begin after pilot portal developed and tested.*
- Outcome: a co-developed process to integrate local data into policy and decision-making. *Reactivated Climate Navigator program (after COVID) & recruitment & training of additional Navigators; researchers/City/NGO communications strengthened; Advisory Council formed; Literature review finished; policy review finished.*
- Outcome: an original knowledge management framework to support planning, policy making, & decision making. *Q-sort completed; Indicators developed; Knowledge graph produced; article in development.*
- Outcome: a system to integrate local knowledge into big-dataset integrative modeling critical for developing scenarios to envision & plan for resilient futures at regional and statewide scales. *Early stages of working with TACC, DataX, and MinT (most progress in Year 3).*

Broader Impacts (Immediate)

- Provision of local knowledge to improve municipal and nonprofit decision and policy-making and household/resident decision-making.
- Establishment and training of residents as Climate Navigators (community-based experts on the neighborhood-scaled impacts of climate events), which will increase short and long-term resilience in the community (including opportunities for professional development and a Higher Ed Pathway Project).
- In partnership with the Planet Texas 2050 research program, integration of local knowledge into computer-based modeling protocols to improve the ability to guide resilience, preparedness, and acute responses across the state.

Broader Impacts (Sustainability)

- Adoption of innovative contributions (a safe and secure data portal, knowledge management framework, a co-developed Climate Navigator training process, and policy process) with other Austin neighborhoods.
- Sharing of portal, knowledge management framework, Climate Navigator training process, and policy process with other US cities.

Community-Identified Problem & Project Vision

- Produce a community-led, innovative data interface to help residents prepare for acute stressors while building long-term resilience to chronic ones
- Integrate local knowledge with existing data to improve municipal, NGO, & household decision making related to climate & health stressors

(right) Integrative framework for project.

Harnessing Information Flows to Support Community Response to Acute and Long-term Stressors
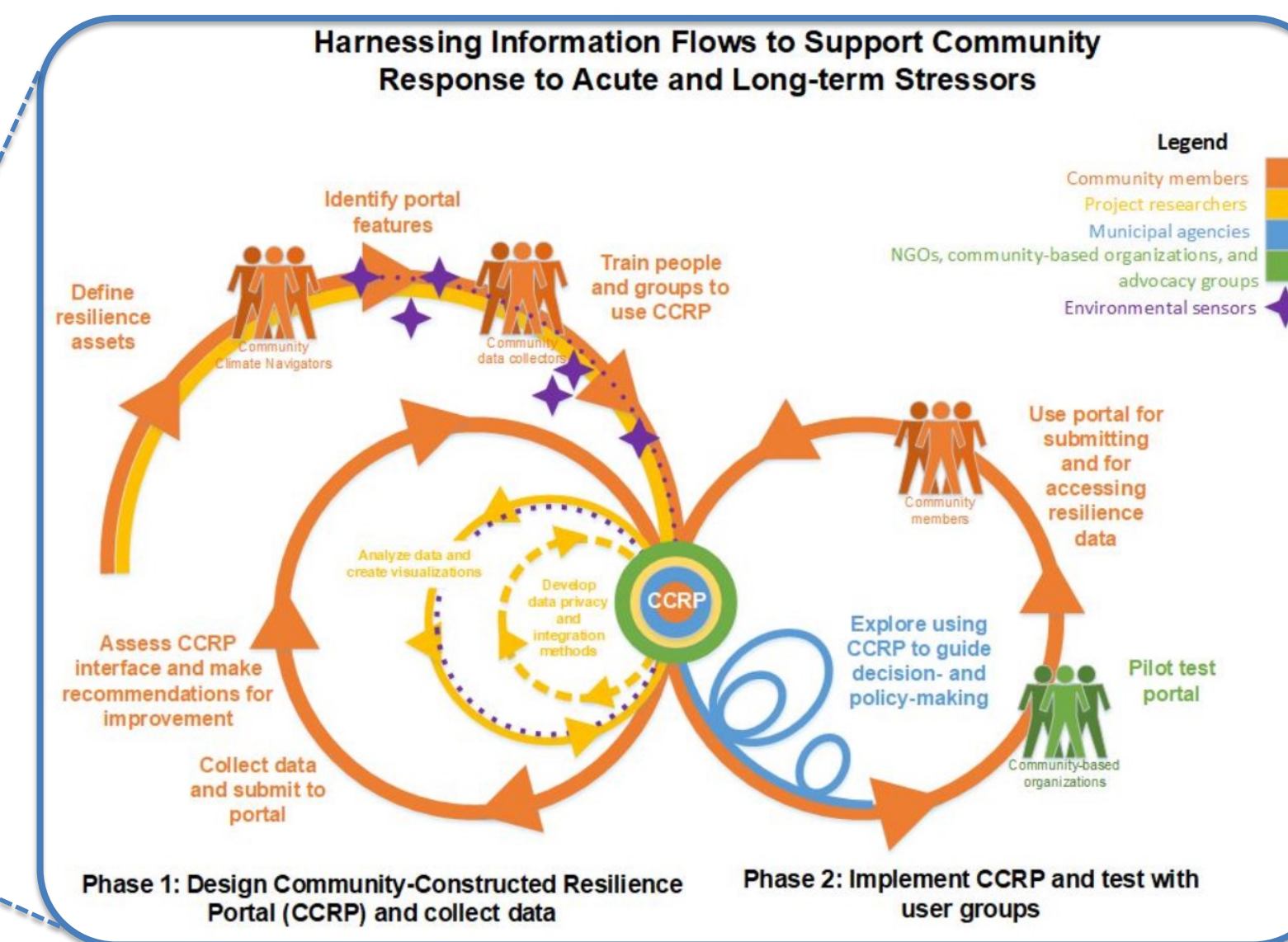
Intellectual Merit

- a community-led, innovative technological interface to help residents prepare for acute stressors & respond to chronic stressors
- a safe, secure,& private technological system to collect, store, & analyze local knowledge
- a co-developed process to integrate local data into policy and decision-making
- an original knowledge management framework to support planning, policy making, and decision making
- a system to integrate local knowledge into big-dataset integrative modeling critical for developing scenarios to envision & plan for resilient futures at regional and statewide scales
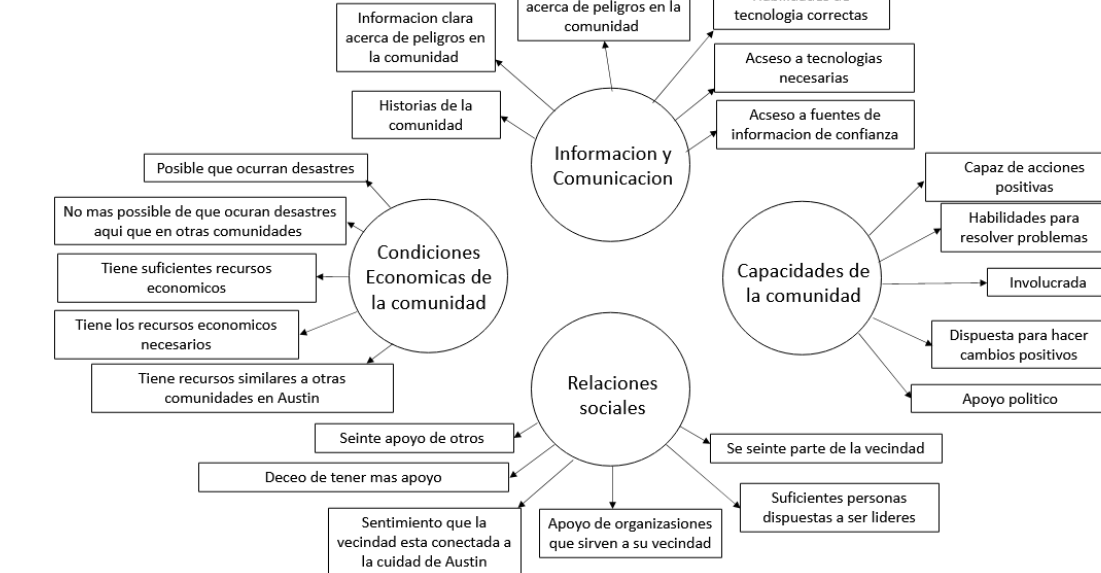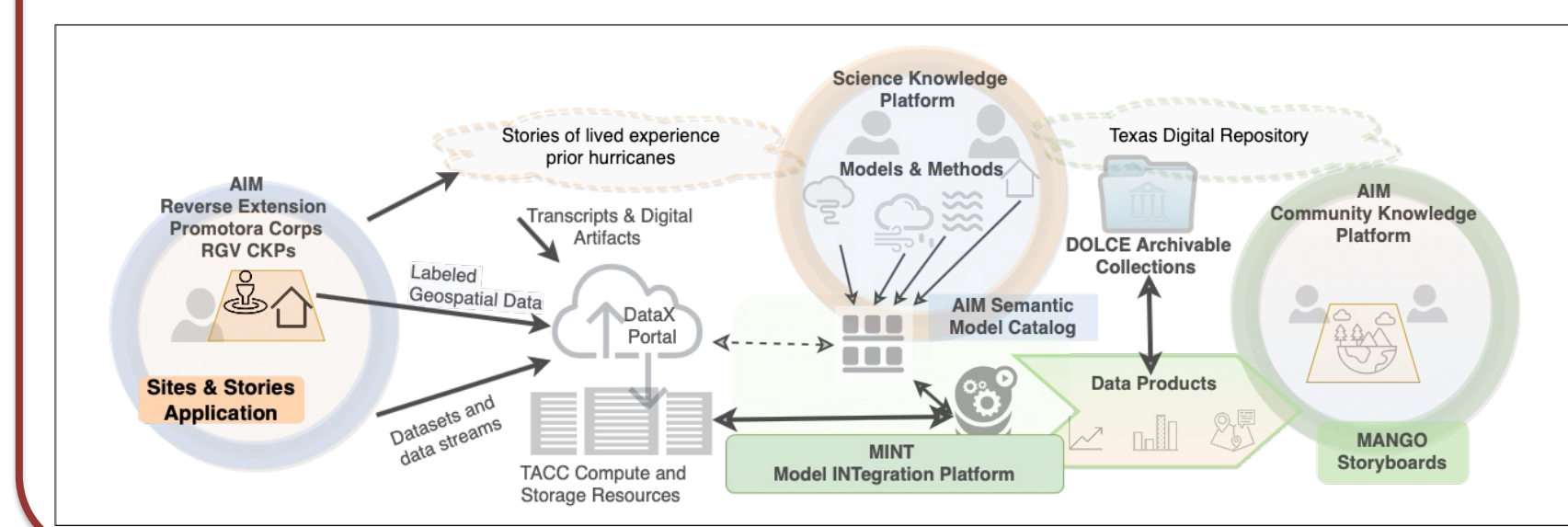
Research Team

Residents of Dove Springs Neighborhood
Go! Austin/Vamos! Austin: Ucha Abbah, Frances Acuña, Carmen Llanes Pulido
City of Austin: Marc Coudert,
St. Edward's University: Rachael Neal

University of Texas at Austin: Patrick Bixler, Nancy Carlson, Andrea Cruz Mejia, Catherine Cubbin, Daniela Echavarria, Ladd Hansen, Anastazja Harris, Anjum Khurshid, Fernanda Leite (co-PI), Katherine Lieberknecht (PI), Jonathan Lowell, Jong Won Ma, Erin Nolen, Suzanne Pierce (co-PI), Eric Nordquist, Natalia Ruiz-Juri, Keri Stephens (co-PI)
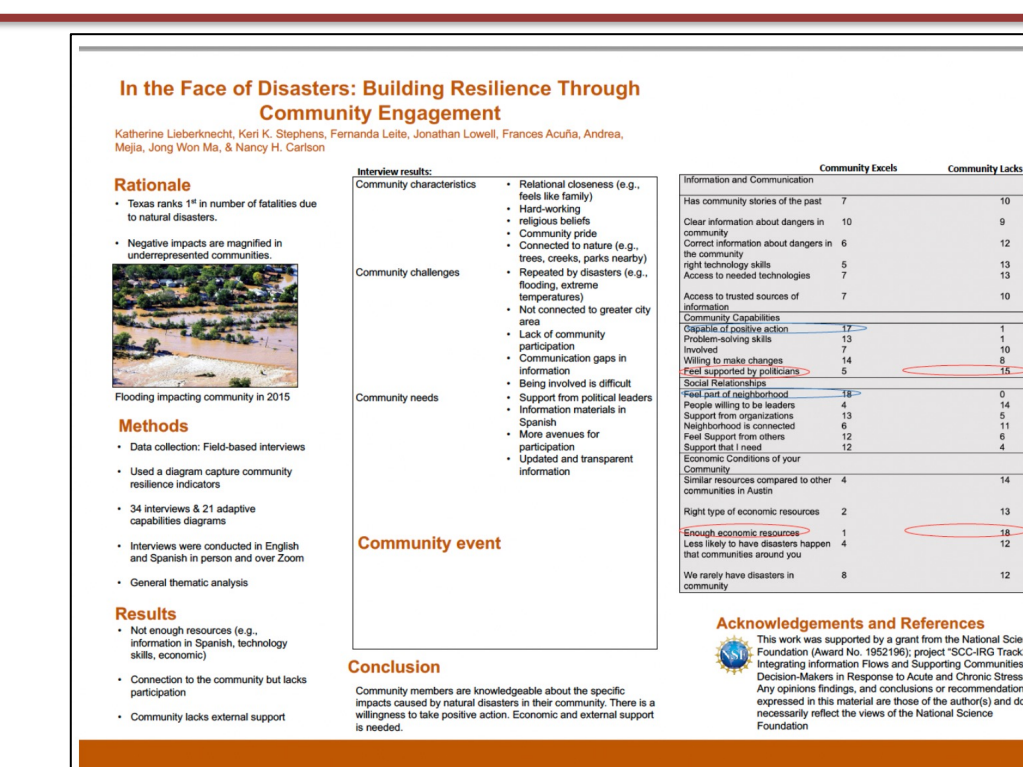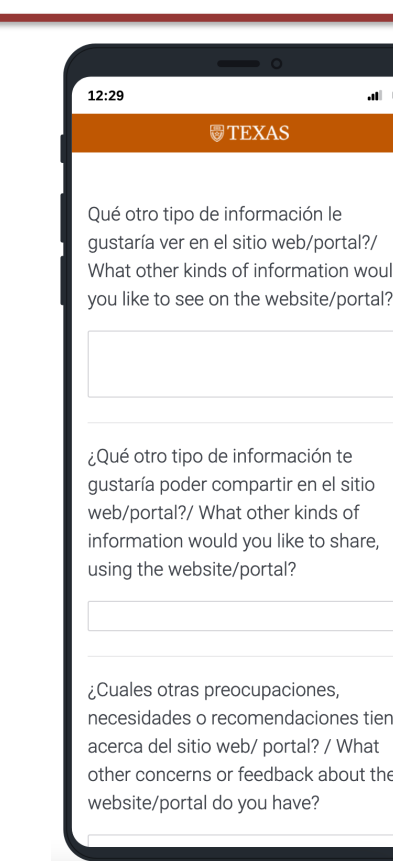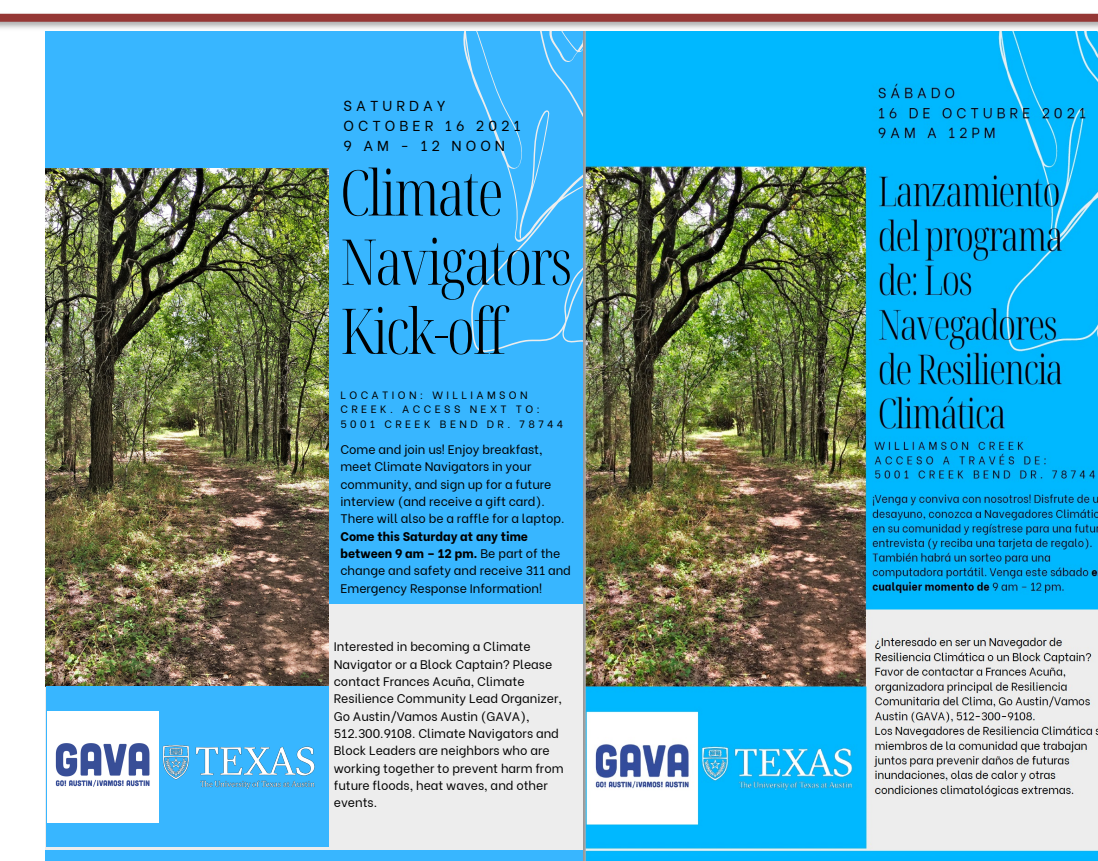
Examples of Year 2 Products

(clockwise from left) Climate Navigator workshop; posters from Climate Navigator kick-off event; post-Workshop survey; research poster developed by N. Carlson; Q-sort methodology developed by J. Ma; example interview materials, co-developed with community partners (Spanish version); sociotechnical design for Sites & Stories.

Next Steps

Finish phase 1 and begin final phase of the longitudinal assessment of community resilience
- Finish analyzing interviews & workshop data; supplement with context from A2SI survey & Census data.
- After portal launch & in use, conduct final interviews.

Finish & launch Sites & Stories/portal
- Host Workshops #3 and #4 with Navigators for portal input.
- Develop prototype portal based on Sits & Stories.
- Pilot test portal with Climate Navigators.
- Train Climate Navigators in portal use. Navigators to train other residents.
- Launch portal.

Develop & implement data privacy process to secure data collection, storage, & analysis
- Develop technical infrastructure & consortium of digital identities.
- Train Climate Navigators to use credentials to upload data/download products to/from portal.
- Train research team to use credentials to access data for analysis.

(clockwise from left): Flooding in neighborhood following Halloween Flood in 2013 (City of Austin); Damage in neighborhood following flooding (Jorge Sanhueza-Lyon, KUT News); Community partner and GAVA staff member Frances Acuña trains a Climate Navigator (GAVA); Children garden while parents participate in a GAVA training (GAVA).