

# **Disaster Continuity for Businesses and Communities in Rural Texas: Investigating Infrastructure, Communication, and Planning Needs**

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## **Project Background**

Small businesses are particularly vulnerable to weather shocks. For example, businesses with under nine employees fare worse in the immediate aftermath of a storm than businesses with 10-49 employees.<sup>1</sup> While there is a plethora of publicly available resources on how to prepare for natural disasters, information tailored specifically for small business owners and their business operations and assets is more limited.<sup>2</sup> Businesses are vulnerable to natural disasters because they can experience capital hardship (e.g., damage to fixed assets, including a storefront or inventory), labor hardship (e.g., injured or displaced employees), supplier hardship (e.g., supply shortages) and consumption hardships (e.g., consumers are unable to use or obtain services because of disasters).<sup>3</sup> Our team's research indicates that small, often rural communities in Texas lack the time or resources to plan for, respond to, or bounce back after disasters.<sup>4</sup>

## **Project Goals**

This project studied the most disaster-vulnerable areas in Texas, particularly the Texas Gulf Coast's Coastal Bend and Rio Grande Valley regions, with the goal of making small businesses and communities along the coast more disaster resilient. Our initial questions were:

- What kinds of programs and messaging around disaster preparedness and recovery are currently available for small businesses?
- How are small businesses preparing for disasters?
- What do small businesses need to become resilient against future disasters?
- To what extent is the disaster-resiliency of small businesses and communities dependent on damage to the built environment or physical business?

## **Methods**

In the Summer of 2022, we sponsored five Home to Texas students to conduct interviews with small business owners, business support groups (e.g., local agricultural extension agent, emergency managers, the Chamber of

Commerce), and local community leaders in the Lower Rio Grande Valley (LRGV). To kick things off, we held a 2-day “Building Context for Community Engagement and Communication: A Community Learning Exchange” workshop in the LRGV that was hosted by the [Museum of South Texas History](#). The workshop centered around building relationships with communities that have been historically marginalized by focusing on the strengths they contribute to their region. Home to Texas students also introduced our research team to their respective hometowns (Brownsville, McAllen, Pharr, and Alvin) by presenting their findings from a “Community Scavenger Hunt.” That summer the students conducted interviews with small business owners and wrote blogs about their learning experiences.

In the Fall of 2022, our faculty team traveled to the LRGV to conduct focus groups with four small business owners and various local leaders, including the Executive Director of the Los Fresnos Chamber of Commerce (located in Cameron County), the Commander/Emergency Management Coordinator of the Los Fresnos Police Department, the City Manager of Los Fresnos, as well as economic development representatives for Hidalgo and Willacy County. Our research team also hired and mentored an undergraduate research assistant from UT Austin’s School of Engineering to help compile economic trends related to disasters for Brazoria County as well as all Coastal Bend and LRGV counties as part of our asset mapping.

In the Spring of 2023, we hired a master’s student from UT Austin’s School of Information to help conduct interviews with 13 small business owners in Austin. We asked owners to provide some background about their business (e.g., did they rent or own their storefront, how many part-time and full-time employees did they have), how disasters impacted their business over the years (e.g., did they ever experience a loss of water, power, or internet), and whether they had a written disaster plan in place. We also asked business owners to provide feedback on small business disaster continuity planning resources, including the Technology & Information Policy Institute’s (TIPI) [Flood Resiliency Guide for Small Business Owners](#).

Using IC2 funds to support the work in the Summer of 2023, Dr. Stephens’ doctoral student, Nancy Carlson, conducted interviews with 35 small business owners and managers in the LRGV. Fourteen of the interviews were conducted in Spanish. Dr. Dean Kyne, an Associate Professor at UT RGV, also helped our research team make connections and supported by recruiting interviewees. We are currently analyzing the qualitative data using a phonetic iterative approach.<sup>5</sup> During the first round of the coding process, codes conveying emerging themes were captured in the software program Nvivo. During the second round of the coding process, we began to interpret and synthesize the initial descriptive labels by using more analytical concepts. Throughout the coding process, the team engaged in a constant comparative method<sup>6</sup> to modify the coding scheme.

Currently, our team’s research scientist, Dr. Tasuji, is conducting a systematic literature review<sup>7</sup> to assess how small businesses prepare for disasters at large, including natural disasters, especially floods and other flood-related disasters (e.g., storms, hurricanes, tsunamis). We selected a list of search terms to query the Web of Science database. After removing duplicate papers, we evaluated the abstracts, titles, and full articles against exclusion criteria to determine if an academic article should be included in the final dataset. The final dataset includes a selection of the 30 most cited papers, as well as 10 randomly selected papers to counteract a popularity bias. We are currently writing the findings to submit to a journal.

### **COVID-induced adjustments**

We involved the Home to Texas students in a virtual internship where we visited the area where they lived and worked once every couple of weeks in the summer of their project. The internships were supposed to be the students’ major summer work, although we later learned they were unable to devote as much time to the effort as we had anticipated. As well, on multiple occasions someone was exposed to COVID or had COVID, and our field

visits could not occur in person. We learned that younger college students have challenges approaching small businesses and asking for interviews, even when they leverage their own network. The bright side of what was not a very successful student involvement experience is that our team has kept in touch with these students. Dr. Stephens has written letters of recommendation for two of them, and one architecture student, Daniel, provided the final editing and graphic layout expertise for the three products we produced for the small businesses. He did this one-and-a-half years after being a part of Home to Texas.

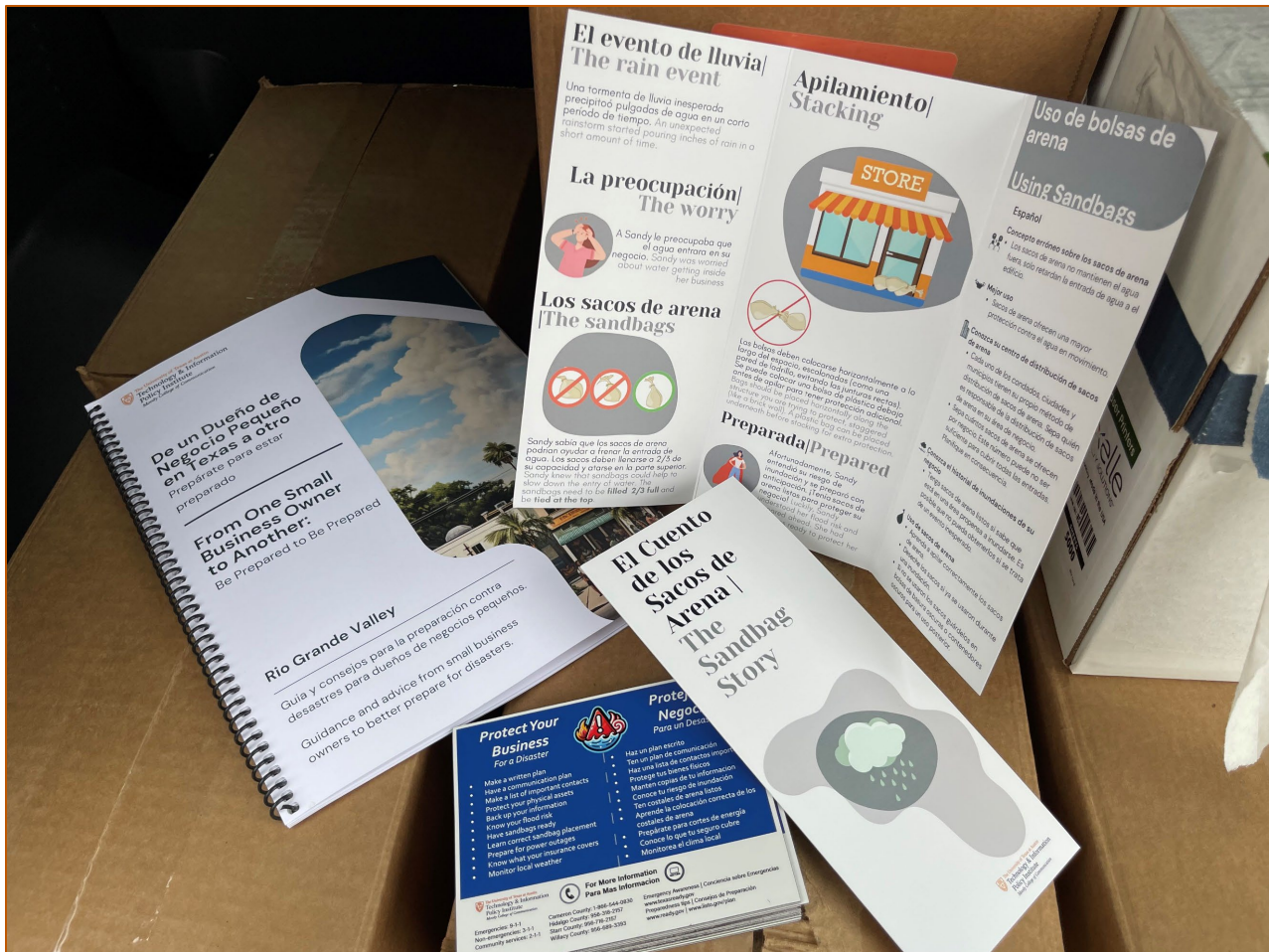
## Research Findings

- There is a major difference between how small businesses that own versus lease their facilities can prepare for disasters. In our study, most people rented, and therefore, our infrastructure research questions were not relevant because renters have little control over the physical infrastructure in their rented facilities. Post disaster, renters were often dependent on landlords to address repair and recovery of the physical property.
- The majority of small business owners do not have a written disaster plan in place, nor do they have the time, money, or resources to attend workshops on disaster planning. Therefore, disaster preparedness resources need to be easy, quick, and accessible.
- Small business owners largely do not know how to prepare for a disaster. Only after experiencing a disaster do they learn to pivot and adjust their operational methods. For example, one farmer found that landscape fabric was more effective than row cover during heavy rain events; in another instance, a retail store owner created multiple revenue streams and moved the business online after COVID; still other examples include the widespread presence of sandbags outside of businesses so that they are easily accessible and can be used and reused as needed.
- Small business owners who have experienced disasters in the past offer insightful tips and advice, including keeping an up-to-date and accurate count of inventory for insurance purposes, maintaining clear communication between managers and employees, and building trusted relationships with plumbers, electricians, banks, and other small business owners.
- Small business owners largely do not trust insurance. They are unwilling to file a claim because they fear that insurance rates will go up, the reimbursements will be too small and insufficient, they will be dropped from the insurance provider, or filing a claim is too time-consuming.
- Because floods happen repeatedly in the LRGV, flood risk has become normalized and accepted among small businesses in the region.
- Collectivist culture is an important asset among small business owners in the LRGV. They value community, and what to share what they have learned with others.
- The major way small businesses susceptible to flooding in the LRGV prepare for floods is by using sandbags. As mentioned earlier, one can see these sandbags outside of businesses throughout the LRGV. However, there was a general lack of knowledge around how to properly use the sandbags and the rules around how to get them when needed.
  - Team Decision: Develop a brochure in story format that shares how a small business in the LRGV can get and use sandbags.

## Products

A primary goal of this project was to develop resources for small businesses in the Lower Rio Grande Valley (LRGV). They were developed with extensive community input, and the local Chambers of Commerce and the Agrilife Extension Agents have agreed to distribute these materials. See a photo of the finished products on the next page. Those items include:

- 800, 4x5 magnets printed and delivered to the LRGV businesses: Proteje Tu Negocio para un desastre & Protect Your Business for a disaster
- 1000 trifold brochures printed in Spanish-first format and delivered to the LRGV businesses: El Cuento de los Sacos de Arena & The Sandbag Story
- 750, 27-page small business preparedness guides: De un Dueño de Negocio Pequeño en Texas a otro: Prepárate para estar preparado & From One Small Business Owner to Another: Be Prepared to Be Prepared. This includes stories of actual business owners in the LRGV discussing how they prepare for disasters.



A second goal of this project was to include Home to Texas students as local interviewers of small businesses and have them create [blogs](#) around their experiences. They did this, and we have include the blogs on our Technology & Information Policy Institute [website](#).

A third goal of this project was to use a rigorous research approach to collect data. This was used for the product development activities and it will be used in research presentations and publications. Here are the details of those research activities to date:

### Research Presentations

Carlson, N., Andelkovic, J., Muna, S., Tasuji, T., Strover, S., Faust, K., & Stephens, K. K. (2024, Feb.). Risk? What risk? Understanding factors of disaster preparedness among small businesses. Abstract to be presented at the Planet2050 Symposium, Austin TX, February, 2024.

## Manuscripts in Preparation

Carlson, N., Anelkovic, J., Muna, S., Tasuji, T., Strover, S., Faust, K., & Stephens, K. K. (in preparation). Risk? What risk? Understanding factors of disaster preparedness among small businesses. To be submitted to the National Communication Association Conference in March 2024, and subsequently to the *Journal of Contingencies and Crisis Management*.

Tasuji, T., Stephens, K. K., Strover, S., & Faust, K. (in preparation). Factors that drive small business preparedness and adaptive capacity before a disaster strikes: A rapid systematic literature review. To be submitted to the National Communication Association Conference in March 2024, and subsequently to the *International Journal of Disaster Risk Reduction*.

## References

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