

# Bounce Forward, Not Back: Leveraging Resiliency to Promote Equity

**Caroline Lauer**

Edward M. Gramlich Fellowship in Housing and Community Development

March 2018

A paper submitted to Harvard's Joint Center for Housing Studies  
and NeighborWorks America



**Bounce Forward, Not Back:  
Leveraging Resiliency to Promote Equity**

**Caroline Lauer**

**March 2018**

Preparing for disasters and increasing resilience to their effects are crucial and timely issues. The summer of 2017 brought historic flooding, wildfires, and hurricanes, and climate data indicates that the intensity and frequency of such events will escalate as the climate changes.<sup>1</sup> Community development organizations, which have historically focused on issues such as affordable housing and economic development, are now pushed to deal with a new set of issues in the field of disaster preparedness. This is especially the case in rural areas, where resources are limited and community organizations often provide a variety of services.<sup>2</sup>

While preparing for a major disruptive event is increasingly urgent, the pressure to respond to daily, unyielding issues such as affordable housing, racial inequality, and food insecurity has not declined. Additionally, scholars such as Simin Davoudi, Larry Vale, and Susan Fainstein, who have examined the politics of resilience and the concept's ability to obscure power relations, have demonstrated the importance and potential of challenging the "feel-good rhetoric" of resilience by confronting underlying equity issues when preparing for disaster.<sup>3</sup> Given the tension between preparing for future events and addressing present needs, this project sought to explore the disaster preparedness efforts of rural communities by asking the following questions:

- Are there rural NeighborWorks® organizations utilizing a resiliency planning approach that both prepares for potential disruptions and tries to address underlying inequality?
- If so, what characterizes their efforts, and what are the opportunities and challenges of leveraging resiliency planning in this manner?
- What lessons might these efforts offer to others interested in pursuing similar approaches in other locales?

## **METHODOLOGY |**

To answer these questions, I began by reviewing the existing literature on the evolution of emergency management, disaster management theory, and the rise and critiques of the word

---

<sup>1</sup> Donald Wuebbles, David Fahey, and Kathleen Hibbard, "Climate Science Special Report (CSSR)" (Washington, D.C.: U.S. Global Change Research Program, 2017).

<sup>2</sup> Elena Kaye-Schiess, interview by the author, September 12, 2017.

<sup>3</sup> Simin Davoudi, "Resilience: A Bridging Concept or a Dead End?" *Planning Theory and Practice* 13, no. 2 (June 2012): 299-333; Lawrence Vale, "The Politics of Resilient Cities: Whose Resilience and Whose City?" *Building Research and Information* 42, no. 2 (2014): 191-201; Susan Fainstein, "Resilience and Justice," *International Journal of Urban and Regional Research* 39, no. 1 (January 2015): 157-67, esp. 166.

“resilience.” Utilizing the NeighborWorks network, I consulted with NeighborWorks’ internal staff to better understand the threats NeighborWorks network organizations faced from natural disasters, the strategies the organizations used to prepare and plan for disaster, and the success of their efforts.<sup>4</sup> Together with NeighborWorks’ staff, we focused on identifying rural organizations that were proactively planning for disaster by leveraging their resiliency investments to confront underlying socio-economic issues within their communities.

As a result of this process, I identified two organizations – Community Development Corporation of Brownsville (CDC Brownsville) in Brownsville, Texas and NeighborWorks Umpqua in Umpqua, Oregon – that merited further research. I conducted semi-structured key-informant interviews with staff members of each organization and reviewed written materials about their work and used those materials to prepare mini-case studies about both groups. I then used mixed methods to analyze the case studies, with a focus on what they suggest about the challenges and opportunities of trying to simultaneously address both equity- and resiliency issues when planning for potential disasters.

## **THE EVOLUTION OF EMERGENCY MANAGEMENT |**

The field of emergency management can be extremely broad, and it has evolved in conjunction with the changing landscape of the types of potential disasters facing communities.<sup>5</sup> Simply defined, emergency management is “a discipline that deals with risk and risk avoidance,” and risk represents an expansive set of issues.<sup>6</sup> The field has “expanded and contracted in response to events, congressional

---

<sup>4</sup> Clare Rosenberger, interview by the author, June 14, 2017; Hieu Truong, interview by the author, June 12, 2017; Elena Kaye-Schiess and David Dangler, interview by the author, June 13, 2017; Paul Singh, interview by the author, June 14, 2017.

<sup>5</sup> Disaster was formally defined in 1961 by Charles Fritz as “an event, concentrated in time and space, in which a society, or a relatively self-sufficient subdivision of a society, undergoes severe danger and incurs such losses to its members and physical appurtenances that the social structure is disrupted and the fulfillment of all or some of the essential functions of the society is prevented.” The definition of disaster has since been a contested concept, subject to questions such as: Do *natural* disasters actually exist? Are disasters only acute incidents, like a hurricane or tornado, or are they also long, slow burns, like climate change? The scope of this paper will not engage with the discussion of what constitutes a disaster, and it will use a broad definition of disaster: natural disasters, climate change, and economic disinvestment all fall under this paper’s conception of disaster. See Kathleen J. Tierney, Michael K. Lindell, and Ronald W. Perry, eds., *Facing the Unexpected: Disaster Preparedness and Response in the United States* (Washington, D.C.: Joseph Henry Press, 2001), 8.

<sup>6</sup> George D. Haddow, Jane A. Bullock, and Damon P. Coppola, *Introduction to Emergency Management*, 4<sup>th</sup> ed. (Boston: Elsevier, 2011), 2.

desires, and leadership styles” throughout its 200-year history.<sup>7</sup> Emerging out of a reactive, decentralized approach to disasters, Franklin Roosevelt’s New Deal policies initiated greater federal involvement in disaster management. In 1933, these policies led to the creation of the Tennessee Valley Authority (TVA), which focused on producing hydroelectric power and reducing flooding in the region.<sup>8</sup> The Flood Control Act of 1934 then expanded the purview of the U.S. Army Corps of Engineers from surveying road and canal routes to include designing and building flood-control projects. In the wake of the Flood Control Act, a piecemeal series of these projects was built across the country. The emphasis on building physical infrastructure not only stemmed from Roosevelt’s desire for increased economic investment, but also flowed from a belief in infrastructure’s ability to eliminate the risk of flooding.<sup>9</sup> At the time, few critiqued the reliance on “single-purpose structural approaches.”<sup>10</sup> However, as dams, levees, and seawalls eventually failed, the approach proved to be shortsighted.

A more holistic approach led by the federal government gained traction in the 1960s after a series of disasters, including the Ash Wednesday storm, a major nor’easter that hit the mid-Atlantic coast in 1962, and the magnitude 9.2 earthquake in Prince William Sound, Alaska in 1964.<sup>11</sup> Physical infrastructure alone, like a seawall or earthquake-resistant construction, could not eliminate the damage from such storms, and emergency management began to include more pre-event preparedness and post-event response in its approach.<sup>12</sup> The 1968 National Flood Insurance Program (NFIP), which uses government-issued insurance against flood damage in cases where private insurance is unavailable

---

<sup>7</sup> Haddow, Bullock, and Coppola, *Introduction to Emergency Management*, 1; Richard Sylves, *Disaster Policy and Politics: Emergency Management and Homeland Security* (London: SAGE, 2015), 59.

<sup>8</sup> Haddow, Bullock, and Coppola, *Introduction to Emergency Management*, 2.

<sup>9</sup> Rutherford H. Platt and Tim O’Riordan, “White, G.F. 1945: Human Adjustment to Floods. Research Paper 29. Chicago, IL: University of Chicago, Department of Geography.”

<sup>10</sup> Platt and O’Riordan.

<sup>11</sup> Sylves, *Disaster Policy and Politics*; U.S. Geological Survey (USGS), “The Great M9.2 Alaska Earthquake and Tsunami of March 27, 1964,” <https://earthquake.usgs.gov/earthquakes/events/alaska1964/>.

The Ash Wednesday Storm of 1962, a level 5 nor’easter, is considered one of the most destructive storms ever to affect the mid-Atlantic states. It killed 40 people, injured over 1,000 people, and caused millions of dollars in property damage. The 9.2 earthquake in Prince William Sound is the most powerful recorded earthquake in U.S. history and the second largest earthquake ever recorded (after the 9.5 earthquake in Chile in 1960).

<sup>12</sup> Sylves, *Disaster Policy and Politics*, 58–88.

or too expensive, exemplified this shift in approach by implementing “soft” policy solutions to complement existing “hard” infrastructure investments.<sup>13</sup>

President James Carter centralized federal emergency management when he created the Federal Emergency Management Agency (FEMA) through executive order 12127 in 1979 as part of his broader goal to streamline government agencies.<sup>14</sup> According to Carter’s Reorganization Plan No. 3, FEMA was to be the “sole federal agency responsible for anticipating, preparing for, and responding to major civil emergencies.”<sup>15</sup> Emergency management under FEMA absorbed responsibilities for “civil defense, certain elements of national emergency preparedness, fire prevention and assistance, disaster relief, flood insurance, earthquake hazards reduction, and dam safety.”<sup>16</sup> The creation of FEMA marked the beginning of the federal government’s large, centralized emergency management focus on risk mitigation, preparedness, and response. In 2003, FEMA became part of the U.S. Department of Homeland Security, where it remains today.<sup>17</sup>

## **THE RISE OF RESILIENCE |**

Over its nearly 200-year history in the United States, the field of emergency management has evolved alongside different types of threats, such as the Cold War, the September 11<sup>th</sup> terrorism attacks, and cyber warfare. Emergency management once again faces a new threat: climate change. With the intensity and frequency of storms increasing due to climate change, the field of emergency management now encompasses efforts to create more efficient response systems, to develop more aggressive efforts to reduce risks, and to rebuild more efficiently after disruptions occur.<sup>18</sup> These goals converge in the term currently dominating the field: resilience.

---

<sup>13</sup> Recently, the National Flood Insurance Program has faced significant fiscal challenges, and a large coalition of private insurers, environmentalists, and fiscal conservatives hope to reform it. On December 22, 2017, President Trump signed legislation passed by both houses of Congress to extend the NFIP’s authorization until January 19, 2018. The future of the NFIP is unclear at the moment. See Mary Williams Walsh, “A Broke, and Broken, Flood Insurance Program,” *New York Times*, November 4, 2017; FEMA, “National Flood Insurance Program: Reauthorization,” December 26, 2017.

<sup>14</sup> For a fuller historical overview of disaster management legislation and its creation, see Haddow, Bullock, and Coppola, *Introduction to Emergency Management*, 6; Sylves, *Disaster Policy and Politics*.

<sup>15</sup> Sylves, *Disaster Policy and Politics*, 67.

<sup>16</sup> Sylves, *Disaster Policy and Politics*, 68.

<sup>17</sup> FEMA, “About the Agency,” <https://www.fema.gov/about-agency>.

<sup>18</sup> Morris A. Bender et al., “Modeled Impact of Anthropogenic Warming on the Frequency of Intense Atlantic Hurricanes,” *Science* 327, no. 5964 (2010): 454-58.

The term “resilience” is situated within a rich theoretical scholarship exploring the politics of disaster and recovery. Generally understood as the ability to persist, perhaps even thrive, amid unforeseeable disruptions, the term “resilience,” which was coined by C.S. Holling, an ecologist and professor at the University of Florida, over 40 years ago, is rooted in an ecological literature.<sup>19</sup> Since then, the concept of resilience has taken root. In the last year alone, the total number of academic citations of resilience has doubled and the term appears in articles from variety of fields, including business, psychology, and sociology.<sup>20</sup>

Scholarship on resilience has surged as the frequency of mega-storms increases and the consequences of climate change become a more pressing reality. Recently, scholars including Susan Fainstein, Lawrence Vale, and Simin Davoudi have wrestled with the political implications of resilience in disaster management theory. Their work sees disaster preparation and response as an arena where opposing interests and stakeholders compete to minimize risk and maximize preparedness.<sup>21</sup> As Christine A. Bevc has noted, disaster response represents “multiple overlapping, interconnected subsets of problems” and reveals hidden struggles for power amongst different groups of citizens, between citizens and governing agencies, and across neighboring communities.<sup>22</sup>

As a concept used to understand disaster response, resilience is similarly political. Davoudi argues resilience cannot be disentangled from broader questions of power, authority, and social justice: “Who bears the brunt of the crisis? What kind and level of ‘disturbance’ is acceptable, and on whose

---

<sup>19</sup> Jerold Kayden, “Resilience, Sustainable Development, Climate Change, Natural Disasters,” presented at the Land Use and Environmental Law, Cambridge, MA. November 29, 2017; C.S. Holling, “Resilience and the Stability of Ecological Systems,” *Annual Review of Ecological Systems* 4 (1973): 1–23. Holling defines resilience as “a measure of the persistence of systems and of their ability to absorb change and disturbance and still maintain the same relationships between populations or state variables.” He differentiates between engineering resilience, which he defines as “the ability of a system to return to an equilibrium or steady-state after a disturbance,” and ecological resilience, defined as “the magnitude of the disturbance that can be absorbed before the system changes its structure.” In engineering resilience, there is one equilibrium within the system, and the faster and more efficiently the system bounces back to it, the more resilient the system. Ecological resilience, on the other hand, has multiple equilibria – both a pre-disturbance equilibrium that the system may bounce back to and multiple post-disturbance equilibria that the system may bounce towards depending on the degree and extent of the disturbance.

<sup>20</sup> Data from survey of Google Scholar results for the keyword “resilience.”

<sup>21</sup> Nandini Gunewardena and Mark Schuler, eds., *Capitalizing on Catastrophe: Neoliberal Strategies in Disaster Reconstruction* (Lanham, MD: AltaMira Press, 2008).

<sup>22</sup> Christine A. Bevc, “Introduction to Conceptual Insights and Applications of Resilience,” in *Disaster Resiliency: Interdisciplinary Perspectives*, ed. Naim Kapucu, Christopher V. Hawkins, and Fernando I. Rivera (New York: Routledge, 2013), 15–21, esp. 17.

terms? Whose interests are best served by ‘system collapse’ or ‘dynamic transformation’?”<sup>23</sup> Vale adds to this discussion by asserting that any conversation about resilience must consider the types of interventions deployed, who the decision makers are, and who stands to benefit.<sup>24</sup> Indeed, Vale writes, “the politics of resilience is central to what the term has to offer” for practitioners in community, housing, and economic development.<sup>25</sup> In these fields, the concept of resilience performs a variety of functions: it is “a theory about how systems can behave across scales, a practice or proactive approach to planning ... and an analytical tool that enables researchers to examine how and why some systems are able to respond to disruption.”<sup>26</sup> Understood as a political term, “resilience” fortifies and expands each of these functions, but as the term grows in popularity, its political nature and therefore its usefulness can fade. Susan Fainstein argues that “resilience mainly acts as a rhetorical device that fits with a bland language of planning in which every challenge produces a win-win solution. Strategies that aim at producing just outcomes, however, require clear statements regarding who benefits, accept that some groups will bear losses, are not usually based on consensus and direct resources toward the most vulnerable as demarcated by their social situation.”<sup>27</sup> If overused and generalized, the term “resilience” can mask important discussions of conflict over desired processes and outcomes, she argues, adding that in order for resilience to be a useful planning objective, its inherently political nature must be communicated and understood.

Incorporating resilience into a proactive approach to planning requires considering the pre-disaster state and planning for a more desirable post-disaster state. “Bouncing back” from a disaster is a popular narrative, but the politics of resilience begs the question, what if the pre-disaster state is an unjust and inequitable socio-economic system?<sup>28</sup> The popular quote, “a crisis is a terrible thing to waste,” by noted economist Paul Romer, holds true in this instance.<sup>29</sup> The planning process before a disaster provides an opportunity to either address inequality or reify the existing power structure. If resiliency planning focuses on equity, resilience investments can improve “the life circumstances of the

---

<sup>23</sup> Libby Porter and Simin Davoudi, “The Politics of Resilience for Planning: A Cautionary Note,” *Planning Theory and Practice* 13, no. 2 (June 2012): 329–33, esp. 332.

<sup>24</sup> Vale, “The Politics of Resilient Cities” 193.

<sup>25</sup> Vale, “The Politics of Resilient Cities.”

<sup>26</sup> Vale, “The Politics of Resilient Cities,” 191.

<sup>27</sup> Fainstein, “Resilience and Justice,” 157–58.

<sup>28</sup> Lawrence Vale and Thomas J. Campanella, eds., *The Resilient City: How Modern Cities Recover from Disaster* (New York: Oxford University Press, 2005).

<sup>29</sup> Jack Rosenthal, “A Terrible Thing to Waste,” *New York Times*, July 31, 2009.



most physically and socio-economically vulnerable residents” in addition to preparing for future disruption.<sup>30</sup> Viewed in this light, community development practitioners, who sit at the nexus of multiple interconnecting forces – economic, social, environmental, and physical – seem to be uniquely positioned to carry out such work. Rather than planning to “bounce back,” they can plan to “bounce forward” towards a society that is more resilient, equitable and just after a disaster strikes.

## **CASE STUDY SELECTION |**

The theoretical literature on resilience is rich, and scholars have identified the strengths of leveraging resilience to address underlying socio-economic issues. This approach is particularly relevant in rural communities, where a small number of organizations provide a diverse array of services.<sup>31</sup> Few organizations, however, have pursued this approach in a systematic way. What characterizes the approaches of organizations that have proactively planned for disruption while confronting existing inequalities? How can practitioners leverage resilience investments for the most vulnerable people in their communities while also preparing for and responding to natural disasters? Through the following case studies of two NeighborWorks America organizations – Community Development Corporation Brownsville in Texas (CDC Brownsville) and NeighborWorks Umpqua in Oregon – this paper explores these questions.

The decision to focus on these two organizations emerged from a series of conversations with NeighborWorks employees on a wide range of topics. I spoke with the head of their Rural Initiative, rural specialists, data analysts, and various senior managers focused on community building, economic development, affordable housing, and green strategies. Together we discussed the missions of various organizations, network organizations, comprehensive community development, resiliency, disaster recovery, manufactured housing retrofitting, trauma-informed community building, and sustainability programming. Through these conversations, the interconnection between NeighborWorks efforts on comprehensive community development, disaster planning and recovery, and social equity emerged as an important topic worthy of further investigation. We sought to identify organizations that were planning for disaster while also advancing equity through community development projects.

These conversations also revealed a spectrum of disaster planning efforts among NeighborWorks network organizations. The spectrum ranges from reactive, haphazard responses from

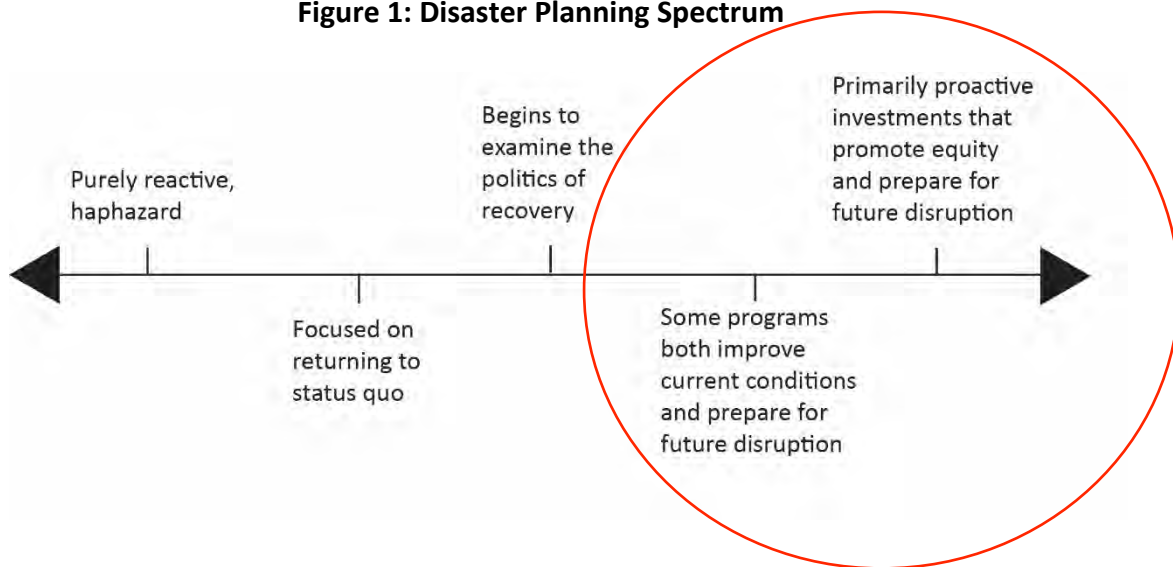
---

<sup>30</sup> Vale, “The Politics of Resilient Cities,” 196.

<sup>31</sup> Kaye-Schiess and Dangler, interview.

communities that have experienced a disaster to communities that are proactively leveraging investments to simultaneously promote equity and prepare their disaster response. Proactive communities establish *processes* for disaster response that are mindful of equity concerns while also creating space for flexibility and reaction to a disaster’s impact. This research focused on the right half of the spectrum below, as indicated with the highlighting circle. Only a handful of organizations are working in this area, including the two that we decided merited further investigation: CDC Brownsville and NeighborWorks Umpqua.<sup>32</sup>

**Figure 1: Disaster Planning Spectrum**



### **Community Development Corporation Brownsville, Brownsville, Texas**

In Brownsville, Texas, at the southernmost tip of the state of Texas on the north shore of the Rio Grande, 30 percent of residents live below the poverty line. Many of them have made their homes in colonias, socially robust but economically and environmentally vulnerable settlements.<sup>33</sup> Hurricane Dolly, which hit the area in 2008, leveled many of the colonias’ dwellings and left \$1.3 billion of damage

<sup>32</sup> NeighborWorks Montana in Great Falls, Montana was preliminarily explored as a potential case study. It was ultimately excluded from further research because it would be a premature case study.

<sup>33</sup> Colonia means “neighborhood” in Spanish, but in the United States it has come to evoke an image of informal settlements with conditions more likely to be found in the Global South than in the Global North. The Texas Secretary of State defines a colonia as an “area along the Texas-Mexico border that may lack some of the most basic living necessities, such as potable water and electricity, paved roads, and safe and sanitary housing.” See Ryan Holeywell, “Colonias in Texas: Third-World Conditions, Slowly Improving,” *Houston Chronicle*, July 17, 2015, sec. Gray Matters. for more information.

in its wake. After the storm, citing a little-known and rarely invoked rule known as deferred maintenance, FEMA denied 100,000 claims, or approximately 85 percent of all claims filed.<sup>34</sup> Charles Powell, the FEMA spokesman in 2008, said in a statement at the time, “A lot of homes were built from second-hand materials, so the damage was, in most cases, caused from the faulty building of the house and not the storm.”<sup>35</sup>

Not surprisingly, many Brownsville residents were upset by this response, and Texas RioGrande Legal Aid sued FEMA on behalf of La Union Del Pueblo Entero (LUPE), a community-activist group, and several homeowners over the denied claims and the decision-making process that identified properties with deferred maintenance.<sup>36</sup> In February of 2017, after eight years of litigation, U.S. District Court Judge Hilda Tagle ruled that FEMA acted illegally when it invoked deferred maintenance and that it needed to reconsider the originally denied claims.<sup>37</sup> While a satisfying win, the legal fight required a large amount of time and resources and did not provide assistance to people in need in a timely manner.

During the years that the case had been wending its way through the courts, CDC Brownsville (CDCB), a nonprofit community housing development organization that has been providing safe, sanitary affordable housing to the lower Rio Grande Valley of Texas since 1974, had been trying to change the paradigm for disaster response.<sup>38</sup> The group’s leaders believed the then-current model of disaster response had serious shortcomings, such as the amount of money spent on temporary emergency shelter, the delays experienced by families and individuals waiting for recovery funds, and the amount of time spent redesigning the wheel after a disaster hit.

---

<sup>34</sup> Elaine Morales, “Rapido Presentation,” presented at the Habitat III Conference, Quito, Ecuador, October 19, 2016.

<sup>35</sup> John Henneberger, “Current FEMA Disaster Recovery Policy Will Leave Low-Income Hurricane Survivors Unassisted,” *Texas Housers* (blog), July 1, 2010.

<sup>36</sup> Cameron Langford, “Legal-Aid Groups Fight for Texans’ Disaster Relief,” *Courthouse News*, September 29, 2017; Gary Long, “FEMA Loses Dolly Battle; Disaster Aid Sparring Ends after Eight Years,” *The Brownsville Herald*, February 23, 2017.

<sup>37</sup> *La Union Del Pueblo Entero et al. vs. Federal Emergency Management Agency (FEMA)*, Civil No. 1:08-Cv-487, United States District Court For The Southern District Of Texas, Brownsville Division, 2017 U.S. Dist., Lexis 146014; see also Long, “FEMA Loses Dolly Battle.”

<sup>38</sup> CDC Brownsville, “About CDCB.”

To address these problems, CDCB's leaders began working with leaders of other entities who also wanted to develop a better disaster response system.<sup>39</sup> By 2014, these discussions resulted in the creation of a formal partnership. In addition to CDCB, the group's members included:

- [bc]WORKSHOP, or buildingcommunityWORKSHOP, is a Texas-based nonprofit community design center focused on design justice through community engagement. It seeks "to improve the livability of communities through the practice of thoughtful design and making" by "bringing design thinking to areas of our cities where resources are most scarce."<sup>40</sup>
- LUPE, La Union Del Pueblo Entero, is a community union founded by César Chávez "rooted in the belief that members of the low-income community have the responsibility and the obligation to organize themselves." (This also is the group that helped bring the suit against FEMA after Hurricane Dolly.)<sup>41</sup>
- ARISE, or A Resource in Serving Equality, is a "community-based program that works with low-income immigrant families to help them create the future they desire and to secure the opportunities they deserve for their children and themselves," and it is specifically focused on assisting women located in the Rio Grande Valley.<sup>42</sup>
- Texas A&M's Hazard Reduction and Recovery Center, a research center within the College of Architecture that studies natural and technological hazards, assisted the effort by developing a set of program design and implementation recommendations.<sup>43</sup>
- Texas Low Income Housing Information Service, or Texas Housers, is a nonprofit established in Austin, Texas in 1988, "dedicated to providing a decent, affordable home in a quality neighborhood to every low-income Texan."<sup>44</sup>

Together the partners developed RAPIDO, a holistic approach to disaster recovery with housing at its center. The initiative aims to quickly and affordably rehouse individuals in safe, healthy housing, while also providing a wealth-building opportunity for individuals and families, building social capital within the community, and stimulating the local economy. RAPIDO transforms the disaster recovery process by

---

<sup>39</sup> Morales, "Rapido Presentation."

<sup>40</sup> buildingcommunityWorkshop, "bcWORKSHOP."

<sup>41</sup> LUPE, "Who We Are."

<sup>42</sup> ARISE, "What We Do."

<sup>43</sup> Texas A&M, "Arch Helps Develop Faster Method of Rebuilding Destroyed Homes," *Texas A&M Today*, August 17, 2016.

<sup>44</sup> Texas Housers, "About."

placing those that are impacted the most at the heart of the effort and leveraging resiliency investments to address existing inequities. The primary objective of RAPIDO is to expedite the rehousing process for those displaced by a disaster. While some displaced homeowners have had to wait years to move in to a new home or repair their existing one, RAPIDO aims to rehouse owner-occupied households, which comprise the vast majority of dwellings in the colonias, within 120 days of registering with the RAPIDO system.<sup>45</sup> The key to meeting this goal is the construction, for each registered family, of a simple 480-square-foot “CORE” that contains essential facilities, such as a living area, kitchenette, ADA-compliant bathroom, and sleeping area.<sup>46</sup>

**Figure 2: RAPIDO CORE Unit**



Photo credit via buildingcommunityWORKSHOP

---

<sup>45</sup> Hazard Reduction and Recovery Center at Texas A&M University et al., “Rapid Disaster Recovery Housing Program” (CDC Brownsville, January 2015).

<sup>46</sup> CDC Brownsville and bcWORKSHOP, “Technical Guide: Rapid Disaster Recovery Housing Program” (CDC Brownsville, 2015), v.

With an elegant and simple design, the CORE units can be built easily at local lumberyards, transported by basic trailers, and assembled on-site in three days by four people. At approximately \$70,000 per unit, the CORE is comparable in price to a FEMA temporary unit of manufactured housing, and a family can be living in the unit within months.<sup>47</sup> The RAPIDO model also features a temporary-to-permanent construction methodology, meaning the CORE can be expanded upon once post-disaster conditions have stabilized. At this point in the program, RAPIDO units have not been used to temporarily house people with homes that could be repaired with time and money; only families with houses that were destroyed during the storm or demolished after the storm due to extensive damage have participated. Participating homeowners choose from a menu of options to customize the details and characteristics of their new home to make it as functional as possible for their family, an important opportunity to exercise agency and choice during a time that often leaves people feeling helpless and hopeless.<sup>48</sup>

Rather than the business-as-usual disaster response that focuses on bouncing back to a pre-disaster state, RAPIDO transitions colonias forward to safe, healthy housing. RAPIDO utilizes FEMA temporary housing funding, typically used to purchase manufactured housing units for families to live in while homes are rebuilt, to build the initial CORE unit, later leveraging HUD funding to finance the expansion. Instead of receiving the manufactured housing temporary unit, which typically costs \$70,000, the RAPIDO pilot employed a cash-in-lieu-of-gift approach, reallocating the \$70,000 from a manufactured housing unit to the RAPIDO CORE unit. Initial CDC Brownsville financial analysis has shown that the CORE appreciated in value: built at a cost of \$70,000, the CORE was appraised at \$90,000 once it was built.<sup>49</sup> Families that do not qualify for traditional mortgage financing and cannot afford to purchase a home suddenly acquire \$90,000 asset, debt free. Colonia residents who owned land previously occupied by substandard housing continue to own the land, but they now have a new, appreciating structure on it. RAPIDO provides higher-quality housing faster than FEMA's conventional approach, and it leverages existing funding channels to do more than physical construction – it builds the foundation for a family's future wealth. Jeremy Stremmer, associate for resource development and strategic planning from CDCB, shared an anecdote of someone moving in to their new RAPIDO home saying, "I'm so happy that I can no longer see the outside from the inside of my home," meaning that

---

<sup>47</sup> Jeremy Stremmer, interview by the author, July 28, 2017.

<sup>48</sup> Morales, "Rapido Presentation."

<sup>49</sup> Stremmer, interview.

she was relieved to no longer have holes in her walls and roof.<sup>50</sup> RAPIDO transforms the traditional disaster response, which merely provided displaced individuals and families with a temporary place to live, into a program that improves health, well-being, and financial outcomes.<sup>51</sup>

**Figure 3: RAPIDO Expanded CORE**



Photo credit via buildingcommunityWORKSHOP

RAPIDO's impact doesn't stop with the built environment. Because the program is based on a bottom-up, community-based approach, CDCB and partners needed local program administration as well. A critical aspect of the RAPIDO model is intensive case navigation, which provides supportive outreach and case management throughout the process by assigning a "Navigator" to each family.<sup>52</sup> Navigators work with families from start to finish and serve as their main point of contact, connecting them to appropriate disaster recovery social services and making the process less intimidating.<sup>53</sup>

---

<sup>50</sup> Stremler, interview.

<sup>51</sup> It is important to note that these homes are rebuilt on the same land that was impacted by the storm. The Rio Grande region and Brownsville, Texas will continue to be vulnerable to hurricanes in the future, but RAPIDO is not a managed retreat program. The relocation of residents is an interesting topic in the resiliency field, but it is outside the scope of this program and this paper.

<sup>52</sup> CDC Brownsville, "Rapido."

<sup>53</sup> Morales, "Rapido Presentation."

Navigators are experienced, trusted community members, and their involvement ensures a culturally and linguistically appropriate support service for natural disaster survivors.<sup>54</sup> Rather than an unknown bureaucrat located far away, families can work with a person they know and trust.

The impact of using local community members as Navigators extends beyond providing improved services for disaster victims. Training a robust Navigator team in advance of a disaster builds social capital within the community and creates a readymade network of well-informed activists who can be deployed on a multitude of fronts. To further train community members (many of whom serve as Navigators), CDCB and their RAPIDO partners created a complementary program, Land Use Colonia Housing Action (LUCHA), which is a “multilateral effort that aims to build power among residents of the Lower Rio Grande Valley in South Texas by organizing groups through increased access to information [that] residents and community organizations can use to better advocate for their respective communities.”<sup>55</sup> LUCHA activists have already experienced success, with hard-fought victories of street lighting installation and improved drainage in the colonias.<sup>56</sup> The Navigator – LUCHA relationship is an excellent example of how CDCB leveraged an initial resiliency investment, the Navigator position, to address inequity. The colonias now have a new cohort of activists ready to advocate for and improve their communities.

The final component of RAPIDO is a pre-procurement and pre-contracting process that occurs in advance of a natural disaster and doubles as a local economic development stimulus. RAPIDO emphasizes the importance and necessity of pre-procurement, organizing all of “the necessary partners, MOUs, communications, payments, supplies, policies and procedures” before a disaster hits so that the recovery process can begin as soon as possible; pre-procurement became a priority for RAPIDO after the delayed response Brownsville had experienced in the past.<sup>57</sup> CDCB approaches the procurement and contracting process from a hyperlocal perspective, and they use 100 percent local labor to design, build, deliver and assemble the CORE and its additions.<sup>58</sup> In addition to jumpstarting the physical recovery after a disaster, the local labor emphasis provides job security during an uncertain time. Residents who

---

<sup>54</sup> CDC Brownsville and bcWORKSHOP, “Technical Guide: Rapid Disaster Recovery Housing Program.”

<sup>55</sup> CDC Brownsville, “LUCHA.”

<sup>56</sup> Stremler, interview; CDC Brownsville, “LUCHA.”

<sup>57</sup> Hazard Reduction and Recovery Center at Texas A&M University et al., “Rapid Disaster Recovery Housing Program.”

<sup>58</sup> Stremler, interview.



were displaced by the storm or temporarily evacuated are assuaged of their fears that there will be no work when they return. Local businesses and their employees have a reason to come back to the community.

Just as each component of RAPIDO builds upon itself and addresses inequity in the colonias in multiple ways, RAPIDO itself has cascaded and created a spin-off: MiCASiTA, a program that deploys the CORE in non-disaster situations as an affordable homeownership opportunity. A partnership between CDCB, Rio Grande Valley MultiBank (RGVMB), bcWORKSHOP, and Texas State Affordable Housing Corporation (TSAHC), MiCASiTA provides assistance to people living in dilapidated housing who earn less than 60 percent of area median income.<sup>59</sup> By deploying a slightly altered version of the CORE with affordable financing options, MiCASiTA provides a path to owning a healthy, energy-efficient, safe home for families that traditionally would not be able to afford it. The creation of a new program that promotes the core tenets of RAPIDO outside of a disaster context exemplifies how CDCB has leveraged resiliency investments to create a more equitable community.

While RAPIDO has garnered a tremendous amount of attention and praise for its reimagination of the disaster recovery process, obstacles remain for scaling the program up and across the state of Texas. In 2015 and 2017, Texas State Senator Eddie Lucio, Jr., a Democrat whose district includes Brownsville, introduced SB 1673, a bill to expand the RAPIDO model across the state and make it the primary approach to disaster recovery within Texas. Despite the program's success, the bill has faced an uphill battle in the Republican-controlled state legislature, which meets for a limited time every two years. It did not come up for a vote in 2015. In the 2017 session, it passed the State Senate with only two nay votes and, by a 6-0 vote also won the support lower chamber's Committee on County Affairs.<sup>60</sup> However, the lower house's leaders did not bring the measure up for a vote, which has caused some partners involved with RAPIDO to wonder if the leaders or those influencing them disapproved of the ways that RAPIDO was organizing in low-income, minority communities.<sup>61</sup> While backers were disappointed that the bill was not voted on, they also note that this is not unusual in Texas, where the

---

<sup>59</sup> CDC Brownsville, "Mi CASITA."

<sup>60</sup> Texas Legislature Online, "SB 1673."

<sup>61</sup> Stremler, interview.

legislature meets once every two years for only 140 days. As one political reporter has noted, more bills in the Texas legislature are killed by clocks and calendars than by votes.<sup>62</sup>

The obstacles RAPIDO's expansion across Texas have not stopped CDCB from sharing their innovative work around the country. Their work has been showcased at the UN-Habitat Workshop, and in New York City at the Cooper Hewitt Smithsonian Design Museum's exhibit "By the People: Designing a Better America."<sup>63</sup> RAPIDO demonstrates that it is possible to leverage resiliency investments for long-term benefits to communities in the aftermath of a disaster.

## **Umpqua, Oregon**

The following case study, on NeighborWorks Umpqua's work coordinating the Southwestern Oregon Food Systems Collaborative (SWOFSC) Seafood Project, examines a less traditional community response to disasters. Instead of allowing a previous experience with disaster to drive its planning efforts, Umpqua is planning for a disaster that has yet to occur by focusing on economic development initiatives with resiliency co-benefits.

Southwestern Oregon boasts beautiful views of the Pacific Ocean and quaint, rural fishing towns connected to one another by bridges. In places like Coos Bay or North End, a bridge is the sole entry and exit point; the community is wholly dependent on the bridge, and isolation can occur swiftly and unexpectedly with a closure. Many fear the arrival of "the Big One," a Cascadia subduction zone earthquake and tsunami, which would transform the string of coastal communities into an archipelago.<sup>64</sup> If and when "the Big One" will occur is unknown, but southwestern Oregon currently faces a series of other threats stemming from a lack of diversification and vulnerability to both physical and economic isolation.

---

<sup>62</sup> Ross Ramsey, "Analysis: Sorry, Your Bill Is Probably Dying," *Texas Tribune*, May 8, 2017.

<sup>63</sup> Texas A&M, "Arch Helps Develop Faster Method of Rebuilding Destroyed Homes."

<sup>64</sup> Kathryn Schulz, "The Really Big One," *The New Yorker*, July 20, 2015

Economic isolation is a threat in southwestern Oregon because of the region's reliance on resource extraction industries. The resource extraction economy has a long history there, beginning as early as the fur trade and continuing to present day with forestry and fishing. Communities that lack diverse economic options have been devastated in the past by their inability to mitigate market fluctuations in the dominant industry. Southwestern Oregon has already experienced such fluctuations over the past two decades with the vertical integration of the fishing industry and its conglomeration, which leaves fewer purchasing options for local fishermen and limits their negotiating ability.<sup>65</sup> In the communities that ebb and flow with the tide and the fish it brings to shore, small aberrations in the larger market have a ripple effect. With few other economic options available, local fishermen struggle in the global market, a phenomenon well documented in a special series of the journal *Marine Policy*, that examined the effects of privatization and deregulation on several regions of North America.<sup>66</sup> In the future, this economic threat is likely to be compounded by the effects of climate change, which will affect the number and species of fish present along Oregon's coast and possibly stymie the region's currently booming shrimp and salmon haul.<sup>67</sup> While the threats facing southwestern Oregon are spaced out over a large time continuum – present day, near future, and distant future – they all revolve around the themes of isolation and dependence. NeighborWorks Umpqua has been an innovative leader seeking to address these threats with a multifaceted approach that addresses current needs, improves the livelihoods of the area's vulnerable populations, and increases their resiliency to present and future threats, both economic and physical.

The fishing industry typically generates a windfall for the state of Oregon, with 292 million pounds of seafood caught in 2015 for a total value of \$136.2 million. In communities like Port Orford, the first line of the fishing industry (those who work as fishermen) employs roughly 30 percent of the population.<sup>68</sup> The region's economic dependence on fishing has steadily increased as the timber industry's employment numbers have declined after the arrival of automation and increased regulation

---

<sup>65</sup> Michelle Martin, interview by the author, July 29, 2017.

<sup>66</sup> Evelyn Pinkerton and Reade Davis, "Neoliberalism and the Politics of Enclosure in North American Small-Scale Fisheries," *Marine Policy* 61 (November 2015).

<sup>67</sup> Allison L. Perry et al., "Climate Change and Distribution Shifts in Marine Fishes"; Lisa Crozier et al., "Assessing Climate Impacts to Pacific Salmon," *Science* 308, no. 1912 (2005).

<sup>68</sup> The Research Group, LLC with assistance from the Coastal Oregon Marine Experiment Station, *Oregon Commercial Fishing Industry in 2015*, Briefing Report prepared for Oregon Department of Fish and Wildlife, March 2016.

in that industry.<sup>69</sup> About a decade ago, however, there was a major crash in the fish market, and local, smaller processing facilities were bought by corporations that closed the plants and sold the equipment to larger processors.<sup>70</sup> Returns for the local fishermen plummeted with the processing plant monopoly when they were no longer able to negotiate a profitable price for their product. Instead of staying in the local economy, up to 80 percent of the area's catch was flash-frozen and transported to Asia, where it would be processed and sold; some of these fish made their way back to Oregon dinner plates after their trans-Pacific travels.<sup>71</sup>

Leaders of NeighborWorks Umpqua, a community development corporation located in rural southwestern Oregon, have grown familiar with the coastal community's economic struggles through their work in affordable housing, homeowner education, financial lending, and property management, and they coordinate the centerpiece of this case study: the Southwestern Oregon Food Systems Collaborative (SWOFSC) Seafood Project.<sup>72</sup> Highly focused on economic development, NeighborWorks Umpqua's work might not be expected to include disaster management, but the SWOFSC Seafood Project is a unique and innovative example of the interconnections between disaster planning, economic development, and social equity.

NeighborWorks Umpqua received funding to examine regional economic development opportunities from WealthWorks Northwest, a regional hub of a national consortium of partners that includes the Aspen Institute and the Center for Rural Entrepreneurship.<sup>73</sup> WealthWorks aims to shift the economic development paradigm beyond generating income and creating jobs without consideration for who receives the income or for the types of jobs that are created. The WealthWorks initiative helps communities identify market-driven opportunities, articulate the supply chain links needed to meet them, and build the business relationships needed to execute them. With partners from six port communities across Oregon's southernmost counties (Coos, Curry, and Douglas), SWOFSC used the WealthWorks framework to analyze their goal of increasing the incomes of small-scale fishermen and

---

<sup>69</sup> Josh Lehner, "Historical Look at Oregon's Wood Product Industry," Oregon Office of Economic Analysis, *Oregon Economic News, Analysis and Outlook* (blog), January 23, 2012; Martin, interview.

<sup>70</sup> Martin, interview.

<sup>71</sup> Oregon Office of Economic Analysis, "Oregon Exports 2015: Destination Countries," *Oregon Economic News, Analysis and Outlook* (blog), August 13, 2015; Patty Cantrell, "Fishing Communities Find Economic Power Doing Business Together," Wallace Center at Winrock International, *Good Food Economy Digest* (blog), September 7, 2016.

<sup>72</sup> NeighborWorks Umpqua, "Who Is NeighborWorks Umpqua?"; Martin, interview.

<sup>73</sup> WealthWorks, "Wealth: The Eight Capitals."

expanding access to fresh, local fish by increasing demand for local, sustainably caught, premium processed seafood.<sup>74</sup>

SWOFSC identified several barriers and opportunities in their analysis, including the lack of awareness of lesser-known seafood and the preservation of local infrastructure, such as processing plants, cold storage and distribution centers. For Michelle Martin, Director of Community and Economic Development at NeighborWorks Umpqua, resiliency was at the core of this work: “Local food production and consumption are economic development and self-reliance building blocks. Local food production lends itself to promoting less [reliance] on larger corporate distribution systems, which is good for everyone.”<sup>75</sup> With this goal in mind, NeighborWorks Umpqua and its partners developed strategies to address the problem at hand: the struggles of small-scale fisheries due to the dominance of multinational seafood corporations, the dearth of local processing facilities, and the lack of local demand for less traditional types of seafood. They leveraged these economic development initiatives to build resiliency for future disasters, preparing for both slow-moving disasters, such as climate change’s effects on the fish population, and acute disasters, such as a major storm.

Driven by these objectives, SWOFSC developed a multifaceted campaign to increase demand for locally caught seafood. First, SWOFSC embarked on an educational campaign to overcome the first identified obstacle: increasing awareness of lesser-known seafood. The campaign attempted to expand the current market of profitable fish for local fishermen and gracefully dovetail with increasing participation in the relatively new Community Supported Fishery (CSF) run by Port Orford Sustainable Seafood. The CSF model is adapted from the Community Supported Agriculture (CSA) model. In it, CSF members pre-pay for local, line-caught seafood, encouraging sustainable fishing practices and strengthening relationships between fishermen and consumers. Port Orford Sustainable Seafood formed their CSF in 2009 to revitalize the local processing plant, increase returns for local fishermen, and keep more fish in the area to improve local access to fresh, affordable fish.<sup>76</sup> Together, SWOFSC and the CSF encouraged Oregonians to expand their fish horizons and embrace “much, much weirder seafood” like

---

<sup>74</sup> Cantrell, “Fishing Communities Find Economic Power”; Martin, interview.

<sup>75</sup> Pam Bailey, “Oregon Group Shows the Way to a Focus on Food,” *NeighborWorks America Blog* (blog), November 18, 2016.

<sup>76</sup> Port Orford Sustainable Seafood, “Our Story.”

abalone and wolf eels, quahogs and gaper clams.<sup>77</sup> In addition to “Who’s your farmer?” they wanted people to be asking “Who’s your fisherman?” and be able to tell the story of where their fish was caught, who caught it, and who processed it.

The educational campaign was twofold, however, and its other prong was informing the public of the current structure of the commercial fishing industry – namely, that most seafood caught in Oregon was traveling hundreds and sometimes thousands of miles before arriving on a diner’s plate. “It was important that we talk about this great irony we live with,” says Martin. “You can be eating at a restaurant overlooking the water, see the fish coming out on the boats, and assume what is on your plate was caught earlier that day, but that’s not the case.”<sup>78</sup> In reality, much of the fish that ends up on a plate in Oregon was caught nearby, flash-frozen, shipped to China for processing, and reimported because the coastal communities where it was caught lacked the processing facilities that would keep the fish in the region.

The work bolstered support for Port Orford Sustainable Seafood and helped fishermen sell their fish at a higher price, which not only alleviated pressure from large corporate seafood buyers but also increased the community’s economic resilience to future disruptions, whether market or natural, by creating demand for a broader array of seafood.<sup>79</sup> If the pink shrimp or salmon market were to fluctuate or cease to exist, its effects would be mitigated by the demand for “weirder seafood.” By working closely with the CSF, SWOFSC helped transform market dynamics and utilized their economic development investments to increase resiliency.

The educational campaign complemented efforts to expand and preserve local industry infrastructure, such as processing plants, cold storage facilities, and distribution centers. For many fishing communities, “cold storage, processing, distribution and other infrastructure that locals need to serve different market channels is now over-sized, far away, or falling apart.”<sup>80</sup> Up to 80 percent of the fish caught locally were leaving the area because there was nowhere to process them, and the limited processing options reduced the negotiating power of fishermen and decreased access to fresh fish for

---

<sup>77</sup> Ramona DeNies, “You Should Be Eating More Amazing Oregon Fish: Oregon’s Coastal Waters Teem with Unique Seafood. So Why Isn’t It Ending up in Our Restaurants?” *Portland Monthly*, May 23, 2016, June 2016 edition.

<sup>78</sup> Martin, interview.

<sup>79</sup> Port Orford Sustainable Seafood, “How It Works”; Ford Family Foundation, “How One Oregon Town Got Its Fish Back,” *Community Vitality* (blog), Spring 2015.

<sup>80</sup> Cantrell, “Fishing Communities Find Economic Power.”

local consumers. It was also a missed business opportunity for towns that stood to gain from the wealth that a processing plant could bring to their communities. A prime example of the need for improved infrastructure was Port Orford, where the dolly dock port was at risk of closing due to physical decay.

**Figure 4: Port of Port Orford Operational Dolly Dock, Port Orford, Oregon**



Photo by Michael Weissenborn

The dolly dock system, where vessels are launched and retrieved using cranes, is unique. (Port Orford’s dolly dock is one of just two in the United States and just six in the entire world.<sup>81</sup>) If the dock were to close, the fishermen in the area would have no way to transport their boats to sea – a death knell for the town, where 35 percent of the population is employed in the fishing industry.<sup>82</sup> “It’s pretty dynamic how losing this dock would affect families and other businesses here,” said Port of Port Orford’s office manager, Katie Dougherty.<sup>83</sup> SWOFSC saw the economic vulnerability of Port Orford and responded to it

---

<sup>81</sup> Enjoy Port Orford, “Port of Port Orford.”

<sup>82</sup> Martin, interview.

<sup>83</sup> Cantrell, “Fishing Communities Find Economic Power.”

by addressing the need for appropriately sized infrastructure. SWOFSC convened local Port Orford partners to develop a plan for businesses to re-enter the newly redeveloped port. The redevelopment of the port, which focused on rehabilitating its dilapidated cannery, was financed with \$400,000 of one-time Oregon Lottery Funds, allocated during the 2016 Oregon state budget process.<sup>84</sup> As the construction was completed, SWOFSC helped to attract local businesses to fill the new commercial spaces in the port and worked with the port's operators to create spaces that the local economy needed. Demand for the new space was high. In fact, said Dougherty, "we have more requests for space than we can fill right now."<sup>85</sup> Once on the brink of closure, Port Orford now has people clamoring for space to open their businesses, as well as a thriving open-air market.<sup>86</sup>

NeighborWorks Umpqua has recently expanded their horizons beyond seafood. In the food systems realm, they have begun to create community gardens throughout the region that both serve as workforce training centers for veterans and homeless individuals and also provide therapeutic services that supplement the area's relatively sparse mental health services. Martin believes these and other efforts to increase food production will be critical in the event of a major natural disaster, notably a major earthquake and/or tsunami that many believe will hit the Pacific Northwest at some time in the future.<sup>87</sup> "The food bank in Coos Bay is the largest in the area, and if tasked with supplying food for everyone in Coos Bay alone, the reserves would run out in one day," she noted. "We need a way to sustain ourselves in the event that we become isolated."<sup>88</sup>

## **Themes and Lessons**

These two case studies offer two different examples of rural community development organizations trying to carry out their traditional roles in the fields of housing and economic development while also expanding their work to include preparing for future disruptive events. Together they suggest several principles about what such work entails in practice.

---

<sup>84</sup> Oregon Legislative Fiscal Office, "2015 - 2017 Budget Highlights Update" (Salem, OR: State of Oregon, March 2016).

<sup>85</sup> Cantrell, "Fishing Communities Find Economic Power."

<sup>86</sup> Martin, interview.

<sup>87</sup> Schulz, "The Really Big One."

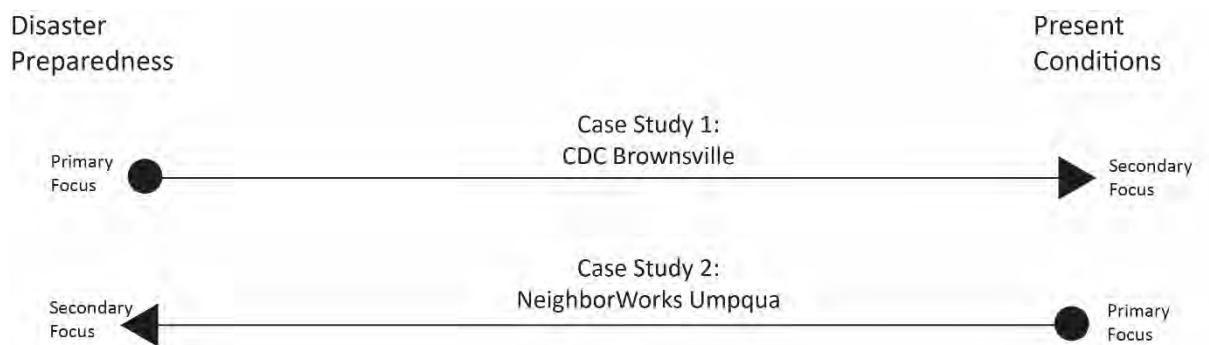
<sup>88</sup> Martin, interview.



## Different Starting Points, Similar Objectives

Brownsville and Umpqua are both proactively planning for disaster and using these resiliency investments to increase equity within their communities, but they each had different starting points and priorities that sparked their work. CDC Brownsville and its partners began developing RAPIDO in response to the slow recovery process after Hurricane Dolly devastated the Rio Grande region in 2008. Consequently, their primary focus has been preparing for recovery efforts far in advance, with the secondary focus of addressing social injustices present in the colonias. NeighborWorks Umpqua, conversely, has yet to experience a major disaster. Its work with SWOFSC began as an effort to address present-day economic development needs. As SWOFSC developed, NeighborWorks Umpqua and partners observed the connections between economic development and disaster resiliency, and preparing for disaster became the secondary focus of their economic development initiatives.

**Figure 5: Primary and Secondary Priorities of Case Studies**



In both examples, efforts to address present-day and future issues overlap and build on one another, but the different starting points of Brownsville and Umpqua have led to different program structures. Brownsville has a disaster preparedness program with community development co-benefits, whereas Umpqua has an economic development initiative with disaster preparedness co-benefits.

## Social and Physical Infrastructure with Multiple Uses and Purposes

One final similarity of the two case studies lies in the implementation of both social and physical infrastructure that served multiple purposes and was important in both pre-disaster and post-disaster conditions.

In Brownsville, the social infrastructure of the Navigators served a critical function in the post-disaster, RAPIDO response by guiding families through the recovery process as trusted members of the community. With community organizing skills learned through RAPIDO, Navigators have mobilized outside of a disaster context as well, advocating for colonia needs such as street lights and stormwater drainage. From a physical infrastructure perspective, RAPIDO's CORE unit, originally intended for deployment after disasters, doubles as an innovative strategy to provide affordable housing to low-income families. The MiCASiTA program described above differentiates itself from traditional manufactured housing by including families in the design process and by offering ways to expand upon the basic unit of the house as the family gains financial stability. MiCASiTA transfers the benefits of the CORE into their community development work, giving the CORE purpose in both pre- and post-disaster settings.

Umpqua also has social and physical infrastructure that serves multiple functions. The educational campaign's encouragement to "eat weirder fish" diversifies demand, bolstering current economic development initiatives and preparing for potential changes in fish populations due to climate change. The network of community gardens doubles as an empowerment opportunity in addition to its role in food production, providing a space for veterans, community members with mental health issues, and individuals experiencing homelessness to gain job and leadership skills as well as build confidence. Similarly, the processing facilities desperately needed to buoy the local fishing economy will also be needed in the disaster recovery process (if they are not totally destroyed by a major earthquake or tsunami). Local processing facilities will be a crucial component of feeding the coastal communities if they become isolated from regions that typically provide their food. Both Umpqua and Brownsville have focused on infrastructure that can be leveraged during both disaster and business-as-usual operations.

### **While preliminary results are promising, it is difficult to fully assess the efforts' effectiveness**

Backers of both initiatives made broad claims about their efforts' effectiveness. However, it is too early to fully assess those claims, particularly claims as to whether the Oregon initiative will be a bulwark against a potential natural disaster. While the importance of communities being able to feed themselves in the event of a disaster was frequently cited as a motivating force in interviews and news reports, NeighborWorks Umpqua and partners may have downplayed the impact of that potential disaster. As former FEMA Region X director Kenneth Murphy, who was responsible for Oregon, Washington, Idaho, and Alaska, noted in Kathryn Schulz's Pulitzer-winning *New Yorker* article "The Really Big One" if and when a major earthquake and tsunami hit the Pacific Northwest, the "operating

assumption is that everything west of Interstate 5 will be toast.”<sup>89</sup> Thus while it is clear that having a basic level of self-sufficient food production can help places recover from a natural disaster that isolates them, it may well be unrealistic to expect that SWOFSC’s current projects would survive that disaster in ways that would be useful for the residents of the region. Rather, SWOFSC’s claim that their work prepares for “the Big One” resembles the “feel-good rhetoric” described by Fainstein.

This does not diminish the importance of their other initiatives and objectives. Rather, it points to the biggest obstacle SWOFSC currently faces: the unknowns of whether their interventions are scaled appropriately to the risks they face and of whether their efforts will be successful. SWOFSC began working on these issues a little over two years ago, and while they have met their initial goals, it is unclear if their work will be sustained either economically or physically. Will expanded awareness of “weirder” fish continue to bolster the incomes of local fishermen? There are enthusiastic new tenants at the Port of Port Orford, but will their businesses be economically viable in five years? Southwestern Oregon is growing, processing, and storing more local food, but will it be accessible during a major disaster, or will the intensity of the event destroy it? Economic success will take time to measure, and SWOFSC will not know if the physical infrastructure will survive until a disaster occurs. For communities preparing for the unknown, the old adage, “only time will tell,” holds true, and scholars will need to return to organizations like NeighborWorks Umpqua in the wake of a disaster to better understand the utility of their proactive initiatives.

### **Addressing present-day issues and future risks in tandem leaves a community more prepared for the next disaster**

The “ratchet effect” theory, which holds that a disaster depletes the community’s resources and reduces its ability to recover from the next shock or stress, it gained traction in the field of disaster studies in 2003.<sup>90</sup> A disaster signals the first step in a community’s decline. Resiliency investments that address present-day issues and future risks in tandem counter this narrative and sow the seeds for greater equity within a community. Similar to fireweed, a pioneer species found in the American West that is critical to an ecosystem’s rebirth after a wildfire, disaster preparation and response that is mindful of current equity issues is a crucial preliminary step to a community’s healthy regeneration.

---

<sup>89</sup> Schulz, “The Really Big One.”

<sup>90</sup> Mark Pelling, *The Vulnerability of Cities: Natural Disasters and Social Resilience* (London: EarthScan, 2003), 16.

**Figure 6: Fireweed, a Pioneer Species in the American West**



Photo via Creative Commons

## **Conclusion**

At the conclusion of this research, Hurricane Harvey ravaged Houston and Hurricane Maria devastated Puerto Rico. Resiliency may be the hottest buzzword of the moment, but it is not without good reason. The urgency of climate change is unrelenting, as are the social justice issues that accompany it, and this paper began to identify rural organizations that recognized the connection between the climate and the social and therefore planned for disaster with both in mind. While NeighborWorks Umpqua and CDCB are different entities pursuing different strategies, both embraced the tension between addressing present needs and preparing for future events in their disaster preparedness approaches.

Moving forward, more research should be done to evaluate the effectiveness of this type of planning approach. CDCB and NeighborWorks Umpqua are both rooted in a mission to rebuild a more equitable and just society after a disaster, but are they successful? What are appropriate metrics to

measure success? Are urban communities, particularly cities like New York and Houston that have been struck by high profile disasters, focusing on equity in their disaster planning efforts? How do these efforts compare with the work of rural communities? If a disaster really is a terrible thing to waste, then gaining a more comprehensive understanding of programs that address the social and the physical through resiliency planning, as well as of their effectiveness, is critical work to ensure future disasters are not lost opportunities.

## Bibliography

- ARISE (A Resource in Serving Equality). "What We Do." <http://www.arisesotex.org/about/>.
- Bailey, Pam. "Oregon Group Shows the Way to a Focus on Food." *NeighborWorks America Blog* (blog), November 18, 2016. <http://neighborworks.org/Blog/Local-food-system-can-be-transformed>.
- Bender, Morris A., Thomas R. Knutson, Robert E. Tuleya, Joseph J. Sirutis, Gabriel A. Vecchi, Stephen T. Garner, and Isaac M. Held. "Modeled Impact of Anthropogenic Warming on the Frequency of Intense Atlantic Hurricanes." *Science* 327, no. 5964 (January 22, 2010): 454–58.
- Bevc, Christine A. "Introduction to Conceptual Insights and Applications of Resilience." In *Disaster Resiliency: Interdisciplinary Perspectives*, edited by Naim Kapucu, Christopher V. Hawkins, and Fernando I. Rivera, 15–21. New York: Routledge, 2013.
- buildingcommunityWorkshop. "bcWORKSHOP." <http://www.bcworkshop.org/>.
- Cantrell, Patty. "Fishing Communities Find Economic Power Doing Business Together." Wallace Center at Winrock International. *Good Food Economy Digest* (blog), September 7, 2016. <http://www.wallacecenter.org/news/-fishing-communities-find-economic-power-doing-business-together>.
- Community Development Corporation of Brownsville. "About CDCB." Community Development Corporation of Brownsville, Texas, n.d. <http://www.cdcbrownsville.org/about-us.html>.
- . "LUCHA," n.d. <http://www.cdcbrownsville.org/lucha.html>.
- . "Mi CASITA." CDC Brownsville, n.d.———. "Rapido." <http://www.cdcbrownsville.org/rapido.html>.
- Community Development Corporation of Brownsville and bcWORKSHOP. "Technical Guide: Rapid Disaster Recovery Housing Program." Community Development Corporation of Brownsville, 2015.
- Crozier, Lisa, Brian Burke, Mark Scheuerell, Eric Buhle, Rich Zabel, Gordon Axel, Ben Sandford, et al. "Assessing Climate Impacts to Pacific Salmon." Northwest Fisheries Science Center, 2015. <https://www.nwfsc.noaa.gov/research/divisions/fe/ecoanalysis/climate-impacts-salmon.cfm>.
- Davoudi, Simin. "Resilience: A Bridging Concept or a Dead End?" *Planning Theory and Practice* 13, no. 2 (June 2012): 299–333.
- DeNies, Ramona. "You Should Be Eating More Amazing Oregon Fish: Oregon's Coastal Waters Teem with Unique Seafood. So Why Isn't It Ending up in Our Restaurants?" *Portland Monthly*, May 23, 2016, June 2016 edition. <https://www.pdxmonthly.com/articles/2016/5/23/you-should-be-eating-more-amazing-oregon-fish>.
- Enjoy Port Orford. "Port of Port Orford." <http://www.enjoyportorford.com/portofportorford.html>.
- Fainstein, Susan. "Resilience and Justice." *International Journal of Urban and Regional Research* 39, no. 1 (January 2015): 157–67.

- FEMA (Federal Emergency Management Agency). "About the Agency." FEMA, May 16, 2017. <https://www.fema.gov/about-agency>.
- — —. "National Flood Insurance Program: Reauthorization." FEMA, December 26, 2017. <https://www.fema.gov/national-flood-insurance-program/national-flood-insurance-program-reauthorization-guidance>.
- Ford Family Foundation. "How One Oregon Town Got Its Fish Back." *Community Vitality* (blog), Spring 2015. <http://www.tfff.org/community-vitality/spring-2015-issue-1/how-one-oregon-town-got-its-fish-back>.
- Gunewardena, Nandini, and Mark Schuler, eds. *Capitalizing on Catastrophe: Neoliberal Strategies in Disaster Reconstruction*. Lanham, MD: AltaMira Press, 2008.
- Haddow, George D., Jane A. Bullock, and Damon P. Coppola. *Introduction to Emergency Management*. 4th ed. Boston: Elsevier, 2011.
- Hazard Reduction and Recovery Center at Texas A&M University, Community Development Corporation of Brownsville, buildingcommunityWORKSHOP, La Union Del Pueblo Entero, A Resource in Serving Equality, and Texas Low Income Housing Information Services. "Rapid Disaster Recovery Housing Program." Brownsville, TX: Community Development Corporation of Brownsville, January 2015. <https://static1.squarespace.com/static/5248ebd5e4b0240948a6ceff/t/5810df50579fb3fe2a9c4ef8/1477500764983/RAPIDO-Introduction.pdf>.
- Henneberger, John. "Current FEMA Disaster Recovery Policy Will Leave Low-Income Hurricane Survivors Unassisted." *Texas Housers* (blog), July 1, 2010. <https://texashousers.net/2010/07/01/current-fema-disaster-recovery-policy-will-leave-low-income-hurricane-survivors-unassisted/>.
- Holeywell, Ryan. "Colonias in Texas: Third-World Conditions, Slowly Improving." *Houston Chronicle*, July 17, 2015, sec. Gray Matters. <http://www.houstonchronicle.com/local/gray-matters/article/Texas-colonias-6389187.php>.
- Holling, C.S. "Resilience and the Stability of Ecological Systems." *Annual Review of Ecological Systems* 4 (1973): 1–23.
- Kayden, erold. "Resilience, Sustainable Development, Climate Change, Natural Disasters." Presented at the Land Use and Environmental Law, Cambridge, MA. November 29, 2017.
- Kaye-Schiess, Elena. Interview by Caroline Lauer, September 12, 2017.
- Kaye-Schiess, Elena, and David Dangler. Interview by Caroline Lauer, phone, June 13, 2017.
- Langford, Cameron. "Legal-Aid Groups Fight for Texans' Disaster Relief." *Courthouse News*, September 29, 2017. <https://www.courthousenews.com/legal-aid-groups-fight-texans-disaster-relief/>.
- Lehner, Josh. "Historical Look at Oregon's Wood Product Industry." Oregon Office of Economic Analysis. *Oregon Economic News, Analysis and Outlook* (blog), January 23, 2012. <https://oregoneconomicanalysis.com/2012/01/23/historical-look-at-oregons-wood-product-industry/>.

- Long, Gary. "FEMA Loses Dolly Battle; Disaster Aid Sparring Ends after Eight Years." *The Brownsville Herald*. February 23, 2017.  
[http://www.brownsvilleherald.com/news/local/article\\_04220f96-fa42-11e6-a047-e77e8310d3af.html](http://www.brownsvilleherald.com/news/local/article_04220f96-fa42-11e6-a047-e77e8310d3af.html).
- LUPE (La Union Del Pueblo Entero). "Who We Are." <https://lupenet.org/>.
- Martin, Michelle. Interview by Caroline Lauer, phone, July 19, 2017. Morales, Elaine. "Rapido Presentation." Presented at the Habitat III Conference, Quito, Ecuador, October 19, 2016. <https://www.youtube.com/watch?v=o6nk8wAUq1A>.
- NeighborWorks Umpqua "Who Is NeighborWorks Umpqua?". Accessed July 10, 2017.  
<https://www.nwumpqua.org/about-us/>. Oregon Legislative Fiscal Office. "2015 - 2017 Budget Highlights Update." Salem, Oregon: State of Oregon, March 2016.  
<https://www.oregonlegislature.gov/lfo/Documents/2015-17%20Budget%20Highlights%20Update.pdf>.
- Oregon Office of Economic Analysis. "Oregon Exports 2015: Destination Countries." *Oregon Economic News, Analysis and Outlook* (blog), August 13, 2015.  
<https://oregoneconomicanalysis.com/2015/08/13/oregon-exports-2015-destination-countries/>.
- Pelling, Mark. *The Vulnerability of Cities: Natural Disasters and Social Resilience*. London: Earthscan Publications Ltd., 2003.
- Perry, Allison L., Paula J. Low, Jim R. Ellis, and John D. Reynolds. "Climate Change and Distribution Shifts in Marine Fishes." *Science* 308, no. 1912 (2005).
- Pinkerton, Evelyn, and Reade Davis. "Neoliberalism and the Politics of Enclosure in North American Small-Scale Fisheries." *Marine Policy* 61 (November 2015).
- Platt, Rutherford H., and Tim O'Riordan. "White, G.F. 1945: Human Adjustment to Floods." Research Paper 29. Chicago, IL: University of Chicago, Department of Geography. *Progress in Human Geography*, Classics in human geography revisited, 21, no. 2 (1997): 243–50.
- Port Orford Sustainable Seafood. "How It Works," n.d.  
<https://www.posustainableseafood.com/caught-in-oregon/csf/>.
- . "Our Story." <http://www.posustainableseafood.com/caught-in-oregon/our-story/>.
- Porter, Libby, and Simin Davoudi. "The Politics of Resilience for Planning: A Cautionary Note." *Planning Theory and Practice* 13, no. 2 (June 2012): 329–33.
- Ramsey, Ross. "Analysis: Sorry, Your Bill Is Probably Dying." *The Texas Tribune*, May 8, 2017.  
<https://www.texastribune.org/2017/05/08/analysis-sorry-your-bill-probably-dying/>.
- Rosenberger, Clare. Interview by Caroline Lauer, phone, June 12, 2017.
- Rosenthal, Jack. "A Terrible Thing to Waste." *The New York Times*. July 31, 2009.  
<http://www.nytimes.com/2009/08/02/magazine/02FOB-onlanguage-t.html>.
- Schulz, Kathryn. "The Really Big One." *The New Yorker*. July 20, 2015.  
<http://www.newyorker.com/magazine/2015/07/20/the-really-big-one>.
- Singh, Paul. Interview by Caroline Lauer. Phone, June 14, 2017.



- Stremler, Jeremy. Interview by Caroline Lauer, phone, July 28, 2017.
- Sylves, Richard. *Disaster Policy and Politics: Emergency Management and Homeland Security*. 2nd ed. London: SAGE Publications Ltd., 2015.
- Texas A&M. "Arch Helps Develop Faster Method of Rebuilding Destroyed Homes." *Texas A&M Today*, August 17, 2016. <https://today.tamu.edu/2016/08/17/arch-helps-develop-faster-method-of-rebuilding-destroyed-homes/>.
- Texas Housers. "About." <https://texashousers.net/members/>.
- Texas Legislature Online. "SB 1673." <http://www.legis.state.tx.us/BillLookup/History.aspx?LegSess=85R&Bill=SB1673#vote92>.
- The Research Group, LLC, with assistance from the Coastal Oregon Marine Experiment Station. *Oregon Commercial Fishing Industry in 2015*. Briefing Report prepared for Oregon Department of Fish and Wildlife, March 2016.
- Tierney, Kathleen J., Michael K. Lindell, and Ronald W. Perry, eds. *Facing the Unexpected: Disaster Preparedness and Response in the United States*. Washington, D.C.: Joseph Henry Press, 2001.
- Truong, Hieu. Interview by Caroline Lauer, phone, June 12, 2017.
- U.S. Geological Survey (USGS). "The Great M9.2 Alaska Earthquake and Tsunami of March 27, 1964." Special Earthquake Studies, n.d. <https://earthquake.usgs.gov/earthquakes/events/alaska1964/>.
- Vale, Lawrence. "The Politics of Resilient Cities: Whose Resilience and Whose City?" *Building Research and Information* 42, no. 2 (2014): 191–201.
- Vale, Lawrence J., and Thomas J. Campanella, eds. *The Resilient City: How Modern Cities Recover from Disaster*. New York: Oxford University Press, 2005.
- WealthWorks. "Wealth: The Eight Capitals." <https://www.wealthworks.org/basics/explore-regional-wealth-building/wealth-eight-capitals>.
- Williams Walsh, Mary. "A Broke, and Broken, Flood Insurance Program." *The New York Times*. November 4, 2017. [https://www.nytimes.com/2017/11/04/business/a-broke-and-broken-flood-insurance-program.html?\\_r=0](https://www.nytimes.com/2017/11/04/business/a-broke-and-broken-flood-insurance-program.html?_r=0).
- Wuebbles, Donald, David Fahey, and Kathleen Hibbard. "U.S. Global Change Research Program Climate Science Special Report (CSSR)." n.d.