COMMUNITY CLIMATE RESILIENCE
IN THE RIO GRANDE VALLEY, TEXAS

A Summary of SCIPP Stakeholder Research

January 2024 – April 2026

STAKEHOLDER ENGAGEMENT

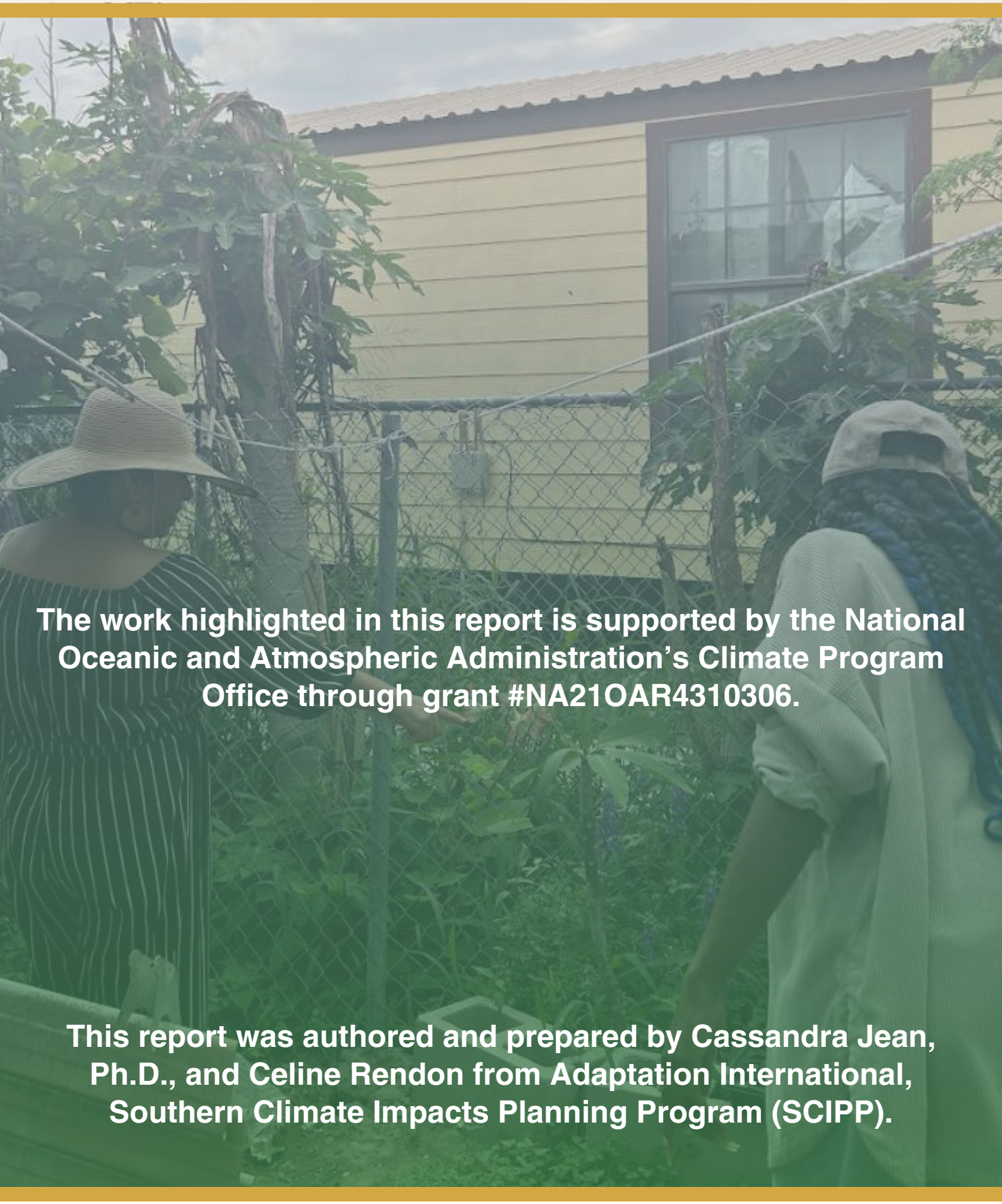
COMMUNITY WORKSHOPS

SITE VISITS AND FIELD RESEARCH

COMMUNITY PRIORITIES

SCIPP | A NOAA RISA TEAM
Southern Climate Impacts Planning Program

Adaptation International
Community Climate Resilience Initiative



The work highlighted in this report is supported by the National Oceanic and Atmospheric Administration's Climate Program Office through grant #NA21OAR4310306.

This report was authored and prepared by Cassandra Jean, Ph.D., and Celine Rendon from Adaptation International, Southern Climate Impacts Planning Program (SCIPP).

SCIPP | A NOAA RISA TEAM
Southern Climate Impacts Planning Program

Adaptation International
Community Climate Resilience Initiative

COMMUNITY CLIMATE RESILIENCE IN THE RIO GRANDE VALLEY

March 2026

A Summary of SCIPP Stakeholder Engagement Activities | 2024–present

EXECUTIVE SUMMARY

The Southern Climate Impacts Planning Program (SCIPP), in partnership with Adaptation International, conducted a sustained, multi-phase stakeholder engagement initiative in the Rio Grande Valley (RGV) of South Texas from 2024 through mid-2026. This effort brought together frontline community-based organizations, research institutions, and regional partners to document climate vulnerabilities, identify priority action areas, and support the development of community-led resilience strategies.

Through a series of virtual workshops, in-person convenings, and participatory methodologies (including PhotoVoice), the engagement process centered the voices of communities most affected by climate hazards and disasters, including residents of unincorporated colonias, outdoor workers, Indigenous land stewards, and low-income households in rural and peri-urban areas. This document summarizes the engagement methodology, organizational partnerships, key findings, and forward-looking recommendations for interested collaborators and partners.

BACKGROUND OF THE PROJECT AREA: RIO GRANDE VALLEY, TX

The Rio Grande Valley, commonly referred to as the RGV or simply the Valley, is a culturally rich and ecologically significant region located at the southernmost tip of Texas along the U.S.-Mexico border, encompassing Cameron, Hidalgo, Starr, and Willacy counties. With an estimated population of approximately 1.3 million residents across communities including Brownsville, McAllen, Harlingen, Pharr-San Juan-Alamo, and Edinburg, the RGV represents one of the fastest-growing metropolitan corridors in Texas (U.S. Census Bureau, 2020). The region is predominantly Hispanic, with over 90% of residents identifying as Hispanic or Latino, and is characterized by a strong binational cultural identity shaped by deep historical ties to both sides of the Rio Grande (U.S. Census Bureau, 2020).

Economically, the RGV faces notable resource constraints, with median household incomes ranging from approximately $36,000 to $48,000 across its four counties, which are below the Texas state median of $67,321, and with poverty rates exceeding 30% in several communities (U.S. Census Bureau, 2022). The region also includes hundreds of unincorporated communities known as colonias, many of which have historically had limited access to municipal water, wastewater, and stormwater infrastructure, increasing residents' exposure to flooding and waterborne hazards (U.S. Department of Housing and Urban Development, 2021). The RGV is also among the most heat-prone regions in the continental United States, with average summer temperatures regularly exceeding 100°F and heat-related emergency department visits trending upward over the past decade (Centers for Disease Control and Prevention, 2022). Despite these challenges, residents, local organizations, and regional partners have, for years, advanced proactive solutions through land restoration initiatives, narrative-based cultural stewardship programming, public education, community-based disaster-preparedness networks, and cross-sector collaboration.

ENGAGEMENT APPROACH AND METHODOLOGY

This engagement initiative employed a multi-method, community-centered research approach designed to integrate local knowledge with evidence-based inquiry. The process used a participatory Theory-of-Change framework that situated the lived experiences of RGV residents within a broader regional and national context, linking place-based conditions to measurable resilience outcomes (Jean et al., 2025). Data collection methods included virtual and in-person qualitative interviews, focus groups, structured workshops, and PhotoVoice.

This participatory research methodology enabled community members and organizational partners to contribute directly to the documentation and analysis of local climate conditions, priorities, and adaptive capacities. Visual and narrative storytelling tools were incorporated throughout to synthesize and communicate findings in accessible, community-affirming formats. The following phases structured the overall process:

Phase	Activity Description
Phase 1 (2024)	Informal interviews and site visits with frontline organizations across the RGV to identify challenges, resource gaps, and collaboration opportunities.
Phase 2 (Sept 2024)	In-person Workshop — Empowering Frontline Organizations: Data, Grants, and Resources for Impact. Facilitated identification of needs, strategic planning, and synergies among participating organizations.
Phase 3 (Feb 2025)	In-Person Community Resilience Workshop — Stories, Strategies, and Solutions: Held in Brownsville, TX, focused on validating community priorities and developing actionable collaborative project plans.
Phase 4 (Oct 2025)	Collaborative research, planning, and completion of a 3-part PhotoVoice Workshop — Voces Unidas Youth Fellows learn the PhotoVoice methodological process and learn to analyze imagery around water in the region, held at the Upper Valley Art League in Mission, TX.
Outputs (Ongoing)	Participatory story mapping, peer-reviewed manuscript development, and capacity-building workshops (Voces Unidas Strategic Project Planning).

Phase I focused on laying the groundwork for identifying these six community leaders, including a landscape analysis of hazards and risks. These informal qualitative interviews, conducted between January and July 2024 with twelve community leaders and organizations across the Brownsville and Rio Grande Valley area, used a holistic community lens and rapid qualitative analysis to document the interconnected dimensions of climate vulnerability, including housing conditions, labor practices, public health, and environmental quality, as experienced and defined by community members themselves. These findings informed a September 2024 virtual workshop structured around participatory small-group activities, collaborative visual synthesis tools, and pre- and post-workshop surveys that assessed

organizational knowledge of climate challenges, existing partnership networks, and shared resilience priorities.

All workshops included structured facilitation, small-group activities, visual synthesis tools (Miro), and follow-up distribution of resources.

Caption: Pictures of Cassandra Jean and Celine Rendon during initial site visits (February 2024)

An in-person community workshop followed in February 2025 in Brownsville, integrating place-based data presentations, including sharing of SCIPP-developed tools and resources, nationally comparable project case studies, and structured group sessions focused on prioritizing programming and community project development, capacity mapping, and collaborative action planning. The team compiled a summary of these results, shared it with the participants, and began building a StoryMap for the project to serve as a central platform for knowledge sharing.

In October 2025, the team worked with Planet Texas 2050 to incorporate PhotoVoice, a participatory visual research methodology, engaging Voces Unidas youth fellows in documenting waterway conditions and landscape change across the region, producing community-generated narratives informed by Indigenous ecological knowledge and long-term place-based experience. A group of 19 fellows participated in the project.

Caption: Community Workshops (September 2025, top left) (July 2024, bottom right) held to connect 12 organizations in the region to strategize and identify barriers faced by community members.

This mixed-methods design reflected established best practices in community-based participatory research, ensuring that the perspectives of residents most affected by climate-related hazards informed both the direction of inquiry and the development of actionable resilience strategies. Collectively, these

methodologies reflect a sustained commitment to positioning community organizations as co-investigators and primary partners in shaping both research direction and implementation strategy.

STAKEHOLDER ORGANIZATIONS

Across all engagement phases, our team worked with a broad coalition of organizations, including environmental reclamation, Indigenous land stewardship, academic research, and community development. The following table catalogs key organizational partners, including:

Organizations	Primary Focus Area
Border Workers United	Outdoor workers, water access, and disaster preparedness
Carrizo Comecrudo Tribe	Indigenous values, sacred land protection, cultural preservation
FLUJOS RGV (Univ. of Arizona)	Flood risks, satellite data, water infrastructure research
Planet Texas 2050, UT Austin School of Architecture	Urban planning, participatory design, community mapping
Save RGV	Renewable energy development, coastal and marine production
Sierra Club (RGV Chapter)	Clean energy, food security, colonia outreach
South Texas EJ Network	Land use and decision-making, water security, food security
Texas RioGrande Legal Aid	Legal support, policy, and decision-making
Texas SeaGrant	Natural resource protection, youth engagement, water security
UT RGV Center for Community Resilience	Community resilience research, innovation, and engagement
Voces Unidas RGV	Youth leadership, civic engagement, narrative organizing, art, and cultural stewardship

In total, approximately 30 unique organizational representatives participated across all engagement phases, with 18 individuals attending the February 2025 in-person workshop and 12 at the September 2024 virtual session, with some organizations attending both.

KEY CLIMATE RISKS AND ENVIRONMENTAL CONCERNS

Across all engagement phases, participants consistently identified a set of interconnected climate risks that disproportionately affect lower-income, rural, and unincorporated communities in the Rio Grande Valley.

The team used pre-workshop surveys to assess organizational knowledge of climate challenges (ratings on a 2–5 knowledge scale), prior collaboration patterns, and priority resilience outcomes. Post-workshop evaluations informed iterative improvements to subsequent sessions. Below are some of the findings from the workshops.

Asset map and priorities matrix from the February 2025 in-person workshop, Brownsville, TX.

Extreme Heat and Energy Strains

Extreme heat represents one of the most immediate and consistently reported climate threats in the RGV. Participants noted that insufficient cooling infrastructure, aging housing stock with poor insulation, and limited access to clean and affordable energy collectively compound heat-related health risks for residents, particularly elderly individuals, outdoor workers, and low-income households in colonias.

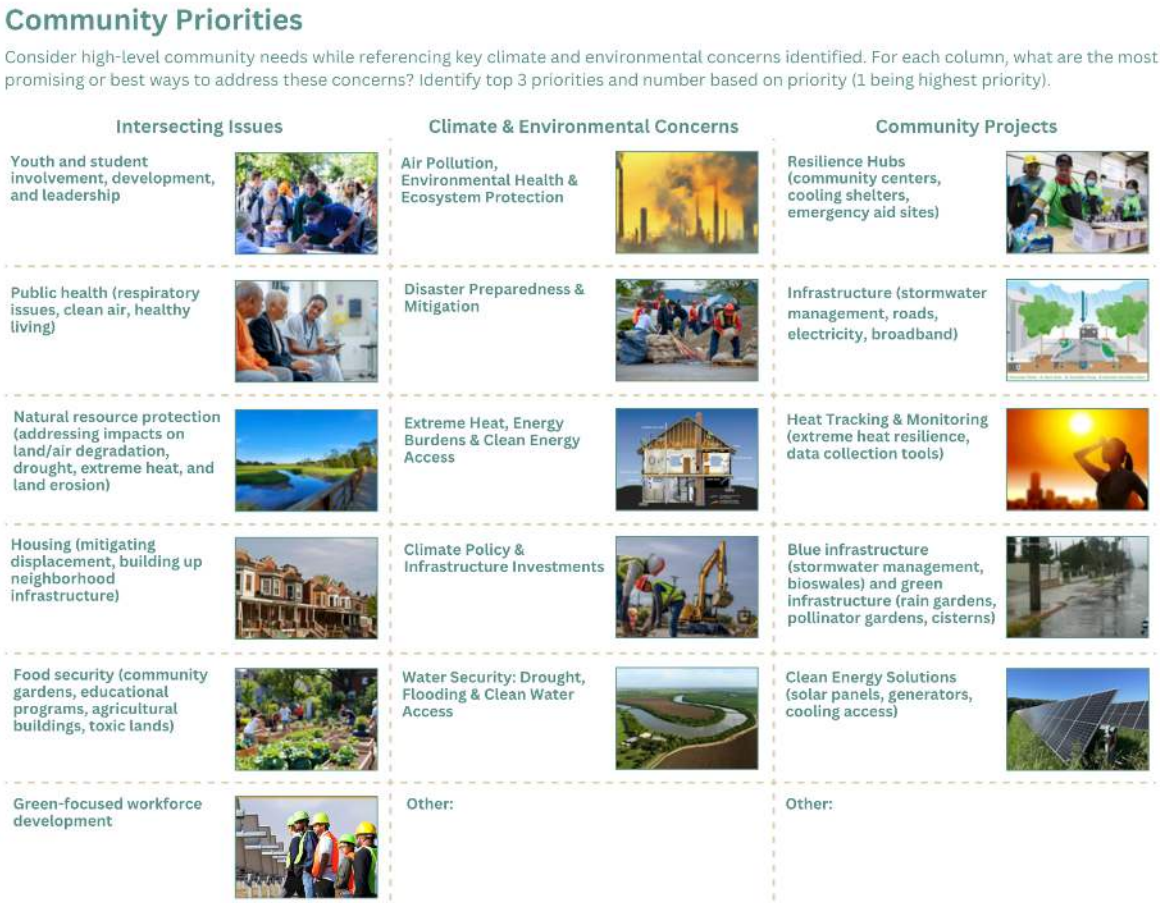
- All participating organizations identified extreme heat as a shared challenge during pre-workshop surveys.
- Energy burden, the disproportionate share of household income spent on electricity, emerged as a priority concern.
- The absence of resilient, backup, or distributed energy systems leaves communities without power for extended periods following weather events.

Flooding, Water Scarcity, and Water Quality

Flooding from extreme precipitation events and inadequate stormwater infrastructure were identified as compounding hazards, particularly in colonias and low-lying rural areas. Simultaneously, water scarcity, driven by drought cycles and water over-consumption, threatens the long-term availability of clean water.

- Participants documented a significant absence of stream gauges and hydrological monitoring infrastructure, and significant data gaps that limit access to disaster recovery funding.
- Water contamination, including adjacent wetlands, was identified as a growing concern for both human health and ecosystem integrity.

- Drought and water access restrictions disproportionately affect agricultural workers, rural families, and communities in unincorporated areas with limited or no municipal water service.



Caption: Screenshot of community priorities matrix from the February 2025 in-person workshop, Brownsville, TX.

DISASTER PREPAREDNESS AND RESILIENCE

A recurring theme across all engagement phases was the recognition that disaster in the RGV is not an isolated event but a persistent, layered condition. As one participant stated, *"the disaster is already here."* The following dynamics characterize the region's disaster preparedness landscape:

Observed Dynamics	Structural Gaps
Communities operate in continuous emergency management mode	Inadequate local housing stock, including poor insulation, mold, and structural damage, worsens climate disaster outcomes
Mutual aid and grassroots networks fill gaps left by limited public emergency infrastructure	Absence of flood gauges and early warning systems limits preparedness and federal funding eligibility

Organizations often respond simultaneously to multiple crises (e.g., weather events and humanitarian emergencies at the border)	Colonia residents face heightened vulnerability due to a lack of access to emergency services
Community resilience hubs with backup solar power have been proposed as priority solutions	Elected officials and county leadership have not consistently engaged with community disaster planning needs
Disaster preparedness is seen as an ongoing practice, not a reactive response	Youth and promotoras are increasingly taking on roles as community educators and first responders

CLIMATE AND COMMUNITY HEALTH

The relationship between extreme weather events and public health emerged as a central concern across all engagement phases. Participants, including community organizers, public health professionals, academics, and legal advocates, described a mutually reinforcing cycle in which inadequate housing, environmental hazards, and limited access to healthcare worsen health outcomes during and following weather-related emergencies.

The underlying mechanism reflects how conditions embedded in the built environment and institutional arrangements shape population health outcomes at the community level. This recognition moves the analysis beyond individual behavior to examine how risk is distributed across populations before any emergency event. When extreme heat, flooding, or prolonged power outages occur, pre-existing environmental exposures, inadequate housing conditions, compromised physiological reserves, and gaps in institutional safety nets converge, turning what might be a manageable stressor into a life-threatening crisis.

Key Climate Health Concerns Identified by Participants

- Heat-related illness risk among outdoor workers lacking workplace protections and access to shade.
- Respiratory conditions linked to air pollution, including emissions from operations, are exacerbated during extreme-heat months, especially when wildfire smoke is present.
- Mold and structural hazards (such as lack of stormwater infrastructure, deteriorating housing stock, lead pipes, or heat islands) in flood-damaged homes and communities contribute to chronic health conditions.
- Mental health impacts are associated with repeated climate disasters, displacement, and chronic stress.
- Food and water insecurity are linked to drought, contamination, and land use change.

- Limited access to health care systems that understand environmental and climate-linked health triggers and conditions.

BARRIERS AFFECTING RESIDENTS IN THE RIO GRANDE VALLEY

Across all engagement activities, participants identified a consistent set of structural, institutional, and resource-related barriers that limit residents' and community organizations' ability to effectively address climate risks. These barriers span multiple sectors and are often interconnected.

Resource and Capacity Constraints

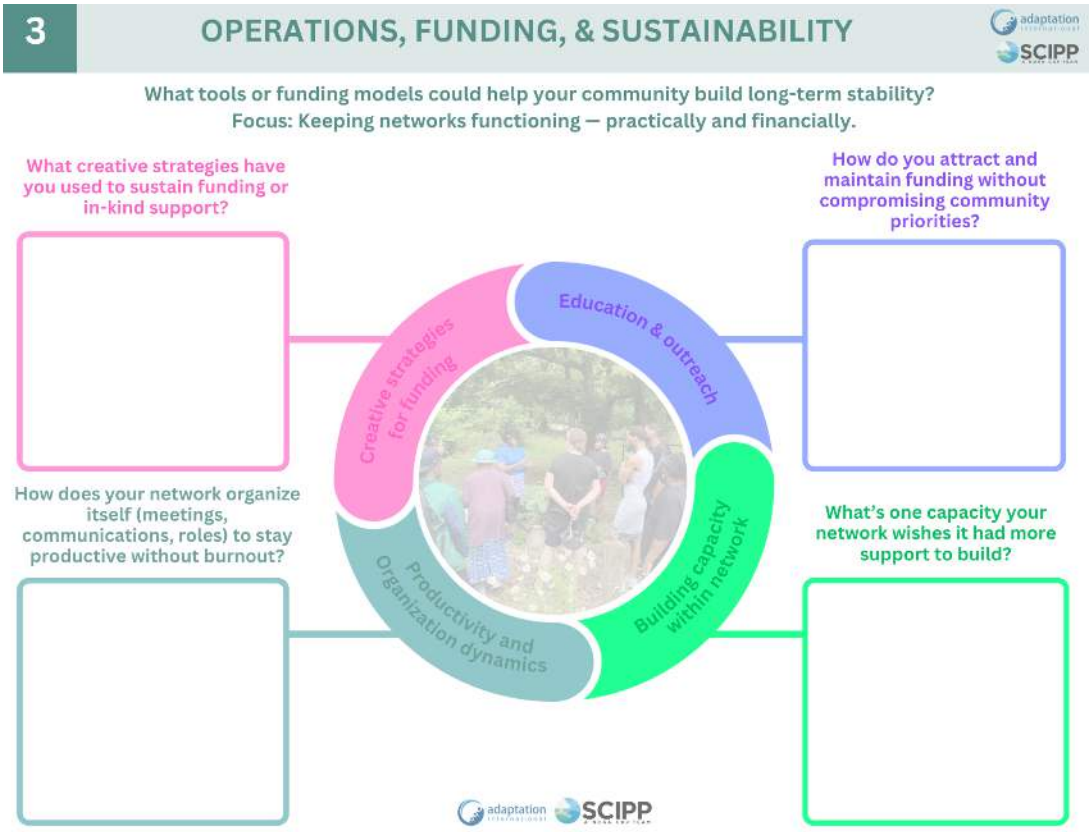
- Small frontline organizations operate with limited staffing and funding, making it difficult to sustain climate programs or manage the administrative burden of federal grant reporting.
- The absence of a regional fiscal intermediary capable of managing and disbursing sub-grants is a critical gap that limits organizational capacity to access larger funding streams.
- Language access barriers limit the reach of climate information, government programs, and legal resources in predominantly Spanish-speaking communities.

Data and Knowledge Gaps

- Limited quantitative data on the localized health impacts of extreme heat, flooding, and pollution constrain community organizations' ability to build evidence-based funding proposals.
- Academic and government research has not consistently translated into actionable, community-accessible resources.

Structural and Governance Barriers

- Residents of unincorporated colonias often lack access to basic municipal services and emergency infrastructure.
- The process of incorporation does not always result in extended services to lower-income communities.



Caption: Small group strategic planning activity highlighting challenges and successes during the September 2024 virtual workshop.

EXAMPLE OF DIRECT PRACTICE

Between September and December 2025, Voces Unidas (a local non-profit), SCIPP, and Planet Texas 2050 (housed at the University of Texas at Austin) partnered to hold three in-person fellow-centered PhotoVoice workshops. The workshop was held at the Upper Valley Art League in Mission, TX.

This PhotoVoice initiative engaged fellows from Voces Unidas to document water dynamics across the RGV, focusing on the Rio Bravo (Rio Grande), local arroyos, and lakes. This three-part workshop included an introduction to PhotoVoice and

Caption: PhotoVoice Workshops with fellows at the Upper Valley Art League, Mission, TX (September- October 2025).

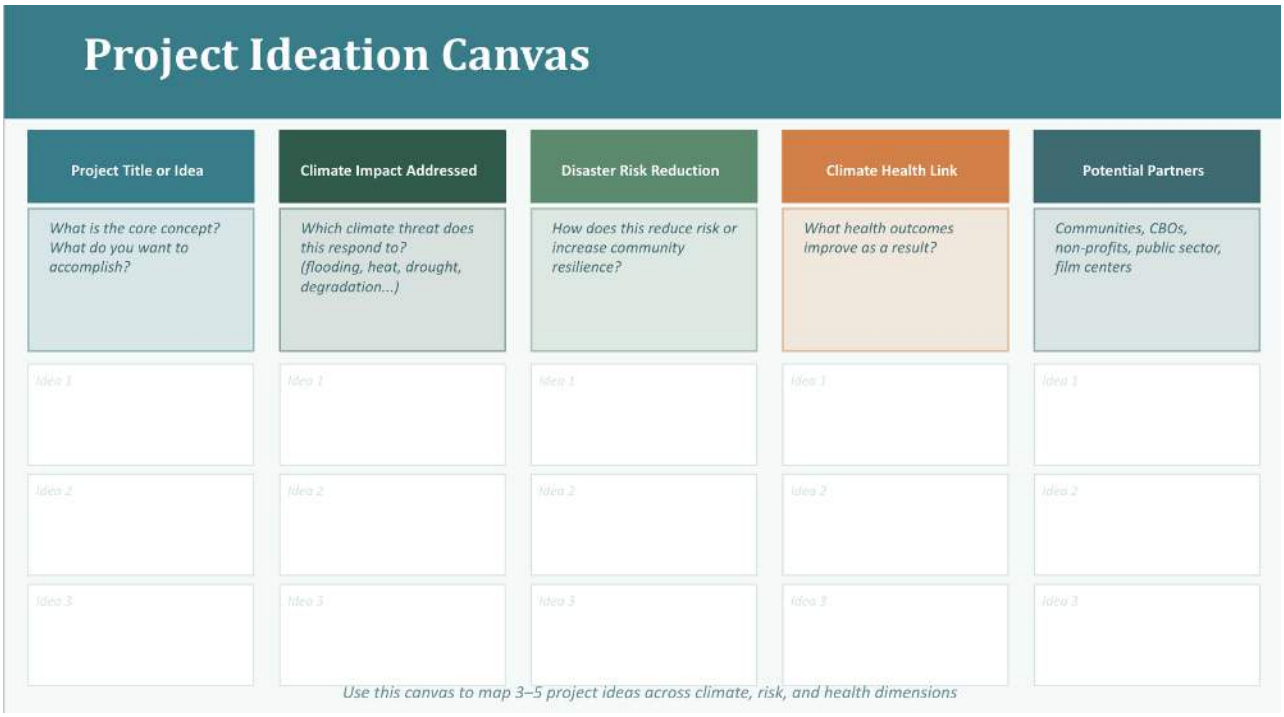
focused on analyzing imagery, understanding presentation, developing narratives for each photo, and identifying themes from the fellows' submissions.

Through these images, the fellows identified key concerns, including declining water availability, limited access to public green spaces, and degraded or underutilized green stormwater infrastructure. They connected these environmental challenges to their personal experiences and community histories. This research project helped catalyze Voces Unidas's programming, including raising awareness of sustainable adaptation strategies through art and storytelling, particularly during hurricanes and extreme flooding events.

This compilation shows just some of the pictures taken by the fellows in the PhotoVoice project. Major concerns focused on drought and water dynamics during extreme heat days.

In February 2026, Voces Unidas engaged in a structured "Capacity Building and Climate Strategizing Workshop" facilitated by Adaptation International as part of the broader SCIPP engagement series to develop strategic project plans aligned with community-identified climate and health priorities. The workshop utilized a suite of interactive planning tools, including a climate and health framework, a project ideation canvas, a project scoping guide focused on population and co-benefits, and a funding framing matrix that connected project ideas to federal, state, and philanthropic funding opportunities.

Through a "Big Picture Check-In process", Voces Unidas identified their core organizational priorities. The ideation process surfaced three well-developed project directions: 1) a second round of PhotoVoice and oral histories initiative integrating citizen science methodologies to document climate and environmental conditions in colonias; 2) a colonia-focused water, specifically the Arroyo Colorado, flooding, and disaster preparedness program that combines community education, knowledge sharing, and mutual aid systems; and 3) a green infrastructure and native planting initiative aimed at building ecological resilience while strengthening community stewardship of land and water resources.



Caption: This image is a PowerPoint template of the 'project ideation canvas' to help organizations think through the climate, disaster, and health-related practices currently within their programming. If not currently implemented, this activity can been used to assist organizations to conceptualize adding these strategies into their organization programming.

Voces Unidas demonstrated clear organizational differentiators: their 20-year record of relationship-based organizing, their unique capacity to integrate arts- and culture-based organizing with civic engagement, and their deep connective ties to regional grassroots partners. These assets, combined with the organization's demonstrated ability to center healing and collectiveness through culture-making, position Voces Unidas as a strong pillar in their community.

RECOMMENDATIONS FOR PRACTITIONERS AND PARTNERS

Based on the findings from all engagement phases, the following recommendations are offered for practitioners, local municipal offices, universities, federal agencies, and other regional stakeholders invested in supporting climate resilience in the Rio Grande Valley.

For Academic Institutions and Research Partners

- Design research programs in genuine partnership with community organizations, ensuring that community members share in the intellectual direction and tangible benefits of research outcomes.
- Center community-determined priorities, including energy resilience, water access, and disaster preparedness infrastructure, in climate adaptation planning.
- Support student and youth engagement in citizen science, data collection, and environmental monitoring as a pipeline for strengthening community-based research capacity.

- Translate research findings into accessible formats, including Spanish-language materials, that communities can use to organize and apply for funding.
- Integrate PhotoVoice, oral history, and other participatory research methods into academic projects to honor and systematically document community-held knowledge.

For Non-Profit Organizations and Practitioners

- Continue building cross-movement coalitions that bridge environmental concerns, employment dynamics, Indigenous presence, public health, and housing infrastructure.
- Develop shared metrics and documentation practices to generate evidence of community impact that can support grant applications and policy implementation.
- Leverage cultural and narrative organizing, including art, media, and storytelling, as both a resilience strategy and a tool for shifting public understanding of climate risk.
- Prioritize youth leadership development and promotora training as foundational to long-term community resilience capacity.

For Local Municipal Offices and County Government

- Engage proactively and transparently with residents of unincorporated colonias on infrastructure investments, emergency planning, and climate adaptation decisions.
- Allocate resources for weatherization assistance programs, cooling infrastructure, and emergency energy resilience in low-income neighborhoods.
- Support flexible, multi-year grant mechanisms with reduced administrative burden to enable small, frontline organizations to participate meaningfully in funded programs.
- Establish community advisory mechanisms that give frontline residents meaningful decision-making power in local climate planning processes.
- Strengthen accountability structures for county commissioners and planning officials regarding community engagement and sustainable service delivery.
- Invest in regional hydrological and environmental monitoring infrastructure, including stream gauges and air quality sensors, in underserved areas of the RGV to address critical data gaps.

CONCLUSION

The SCIPP-led stakeholder engagement initiative in the Rio Grande Valley has highlighted the significant climate- and health-related challenges facing communities in this region, as well as the collaboration, capacity, and commitment of the organizations working to address them. Through initiatives like the youth-led PhotoVoice project and collaborations among multiple organizations, communities in the RGV are proactively building resilience rather than waiting for top-down solutions. However, sustained investment, meaningful partnerships, and structural support from federal, state, and institutional stakeholders are essential to align the community-driven solutions with the scale of climate risks. The SCIPP team is well-positioned to serve as a vital link in this process, connecting the scientific foundation of federal climate programs with the lived experiences, trusted relationships, and local knowledge of frontline communities in South Texas.

WORKS CITED

Centers for Disease Control and Prevention. (2022). Heat and health tracker. https://ephtracking.cdc.gov/Applications/heatTracker/

Jean, C., Rendon, C., Even, T., & Petersen, A. (2025). Wisdom of the Past, Power for the Future: Centering Local Traditions in Community Organizing to Codevelop Climate Adaptation Practices. *Weather, Climate, and Society*, 17(4), 849-864.

U.S. Census Bureau. (2020). Decennial census: Race and Hispanic origin. https://data.census.gov

U.S. Census Bureau. (2022). American Community Survey 5-year estimates: Income and poverty. https://data.census.gov

U.S. Department of Housing and Urban Development. (2021). Colonias in the United States: A progress report. https://www.hud.gov