National Institute of Environmental Health Sciences
Worker Training Program

Building Local Capacity and Bridging Training Gaps in Disaster Preparedness and Response for Workers and Communities

SUMMARY REPORT

DECEMBER 2025

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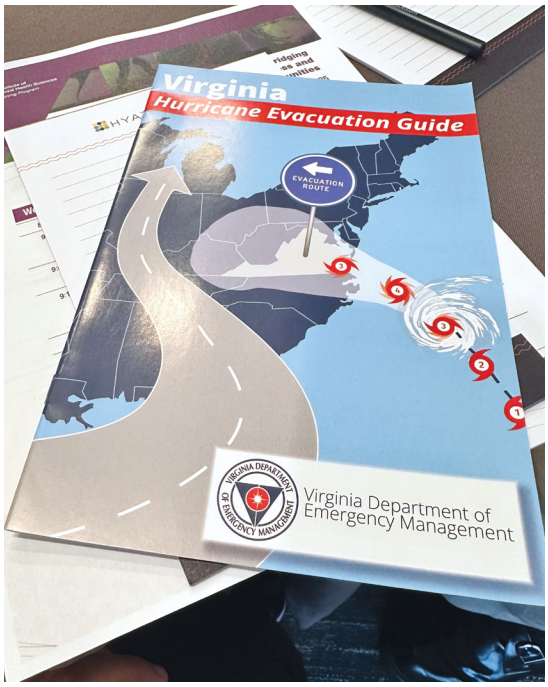
Introduction

On Sept. 17-18, 2025, the National Institute of Environmental Health Sciences (NIEHS) Worker Training Program (WTP) hosted a meeting, "Building Local Capacity and Bridging Training Gaps in Disaster Preparedness and Response for Workers and Communities," in Virginia Beach, Virginia.

Disasters often leave behind a complex landscape of risks and hazards that can significantly affect the health and safety of response and recovery workers, business owners, and residents in the impacted areas. Since 1987, WTP has equipped over 5 million workers across the U.S. and its territories with the knowledge and skills needed to safely manage and remove hazardous materials, including in post-disaster environments.



Copy of the Virginia Hurricane Evacuation Guide, a useful resource that was shared with participants during the meeting.

Meeting participants included staff from NIEHS WTP and WTP award recipient organizations, as well as representatives from emergency response agencies, academia, and community-based organizations. Meeting participants engaged in discussions around safety and health as it relates to extreme weather events and disaster preparedness, response, and recovery efforts. Specifically, participants gathered to:

- Explore response plans to a likely disaster and impacts of changing federal response.
- Understand the roles that each organization plays during a response.
- Learn how to access and use the NIEHS WTP network and available resources.
- Understand needs and capabilities of various organizations.
- Identify potential partners in preparedness, response, and recovery efforts.

WTP Director Sharon Beard welcomed participants to the meeting and WTP Health Specialist Eric Persaud, Dr.P.H., shared the meeting goals and objectives. WTP Industrial Hygienist Amelia (Mia) Pearson facilitated a round robin of introductions to help everyone get familiar with the other participants at their table.

Virginia Beach Fire Department, Disaster Response and Rescue

Assistant Chief Michael Brashear, with the Virginia Beach Fire Department, delivered a comprehensive and insightful presentation focused on disaster response and rescue operations, emphasizing the importance of proactive partnerships and preparedness. He began by highlighting the value of local relationships with agencies, such as the Virginia Beach Office of Emergency Management, which are crucial before a disaster or emergency. Brashear discussed the multifaceted nature of disaster response, detailing the Virginia Beach Fire Department's specialized capabilities in technical rescue, hazardous materials response, and marine operations, which include boats and jet skis for swift water rescues. Training with local, state, federal, and even military partners is a cornerstone of their readiness strategy.

The Emergency Management Assistance Compact (EMAC), administered through the National Emergency Management Association, is a national interstate mutual aid agreement that enables states to share resources during times of disaster. Brashear explained how the EMAC facilitated their department's deployment and response to floods in Texas earlier this year. Brashear also discussed the Virginia Beach Fire Department's involvement with responses to Hurricanes Sandy, Irma, Maria, and Helene, and he emphasized the humanitarian aspect of the department's work and the importance of listening to survivors' stories. Lessons learned include the critical need for speed during rescues and the value of regional assets before federal aid arrives. For local emergency managers, Brashear stressed the importance of building relationships and conducting joint exercises to streamline coordination. Environmental monitoring and decontamination are rigorously practiced due to unknown contaminants in floodwaters. Mental health support is also prioritized, with doctors and peer support teams ensuring responders' well-being. Brashear concluded by addressing the complexities of responding in urban versus rural areas and adapting to rapidly changing conditions, emphasizing flexibility, local intelligence, and decentralized decision-making as keys to effective disaster response.

Assistant Chief Michael Brashear *(center)* shares information about the Virginia Beach Fire Department's response capacity with meeting participants.

Extreme Weather Scenario and Facilitated Discussion

On the first day of the meeting (Sept. 17), participants engaged in an extreme weather/disaster scenario and facilitated discussion focused on a Category 4 hurricane. Two facilitators from MDB, Inc./National Clearinghouse for Worker Safety and Health Training (National Clearinghouse) led the scenario and facilitated discussion. The facilitators, Joy Lee and Chip Hughes, introduced injects, answered questions, and maintained the flow of the scenario and discussion.

The scenario was selected to represent a plausible local event. The artificialities in the scenario were used to generate discussion. The scenario began with part 1 (Preparedness) a couple of days prior to the event.

- The weather forecast shows a tropical system forming off the coast of Virginia. Meteorologists are predicting this to be a strong storm, with the potential to develop into a Category 4 hurricane within the next couple of days.
- Some areas are expected to experience storm surges of 6 to 8 feet above normal tide levels.
- The governors of North Carolina, South Carolina, Virginia, and Maryland issue a state of emergency. Thousands of residents along the coast begin evacuating.

Part 2 (Response and Recovery) of the scenario took place from the day of the event up to a month after the hurricane.

- Strong winds severely damaged chemical tanks in the Naval shipyard, leading to chemical spills.
- Catastrophic flooding caused by the rain also occurred in coastal areas and low-lying residential areas in Norfolk, Virginia Beach, as well as low-lying

Meeting participants share key topics of concern during a small group discussion at their table.

rural areas of North and South Carolina near concentrated animal feeding operations. Temperatures remain elevated with high humidity.

- Evacuated citizens are returning to their residences to begin cleanup and repairs.
- As with other disasters, many did not evacuate and continue to live in their homes, apartments, or other place of residence.
- Private businesses and manufacturing are working to clean up and reopen.
- Local workers are being hired to assist with the cleanup. Out-of-area workers and volunteers, including Volunteer Organizations Active in Disaster (VOADs), unskilled workers, and faith-based organizations, have also shown up to help with the recovery.

The facilitated discussion was organized into two parts: 1) preparedness and 2) response and recovery. Participants shared more about their organization's involvement during both parts, and contributed ideas in both large and small group (table) discussions.

Preparedness and Evacuation Planning

Participants engaged in a discussion about preparedness based on the weather forecast and predictions in the disaster scenario (see page 5).

Participants highlighted the importance of establishing and maintaining relationships across agencies—local, state, federal, and nonprofit—well before a disaster strikes. Monthly meetings, tabletop exercises, and joint planning were cited as essential tools for building trust and operational readiness. Participants also noted the importance of pre-positioning assets, such as trucks, ice, medicine, and emergency teams, in safe zones like university campuses to ensure rapid deployment after the hurricane made landfall.

Participants emphasized the psychological and logistical importance of ensuring that responders' families are prepared, noting that personal concerns can hinder professional effectiveness. Regional coordination can be complicated, particularly in Virginia, where cities are independent and not part of counties. This structure requires emergency managers to coordinate individually with each locality. Representatives from the Virginia Department of Emergency Management (VDEM) described the department's role in setting up regional coordination centers and working with local emergency managers to assess needs and request resources from the state-level emergency operations center.

Participants also addressed communication strategies, including the use of local media, cell phone alerts, and rumor control hotlines. The importance of consistent messaging across agencies was emphasized, with state-level public information officers coordinating daily talking points for local dissemination. Finally, the U.S. Coast Guard's role in managing port closures and hazardous materials (HAZMAT) coordination was noted, along with the need to stage resources several hours away from impact zones to ensure availability.

Harrison Breese and Bruce Sterling, with VDEM, gave a presentation on evacuation planning and estimated clearance times based on hurricane evacuation models and studies. The challenge of coordinating evacuations across state lines was underscored by the example of North Carolina evacuees passing through Virginia and occupying critical hotel space. The presentation also touched on the limitations of evacuation modeling, which does not account for Category 5 hurricanes north of the Virginia-North Carolina line, and the reality that many people delay evacuation until the last 24 hours, complicating logistics.

Harrison Breese *(right)* and Bruce Sterling *(left)* discuss issues surrounding pre-storm evacuation in Virginia.

Day 0-2: Early Response and Mobilization

The scenario focused on the landfall of a Category 4 hurricane, widespread flooding, blocked roads, and a significant chemical spill near the Norfolk naval shipyard.

Participants highlighted the importance of situational awareness, including the use of drone flyovers and helicopters with mounted speakers and leveraging local radio and cell phone alerts to reach affected populations, especially when electricity and the Internet are unavailable.

The U.S. Coast Guard was identified as the federal on-scene coordinator for the chemical spill, while state HAZMAT teams composed of local fire department specialists would support containment and cleanup. Unified messaging was emphasized, with state and local public information officers coordinating daily talking points to ensure consistent communication with the public.

Patricia Creech *(front left)* shares more about USW SERT teams and their training capabilities following extreme weather events.

Patricia Creech and Nikki Pollo, with the United Steelworkers (USW), gave a presentation on their Specialized Emergency Response Trainers (SERTs). The SERTs program, coordinated through the USW Tony Mazzocchi Training Center, is designed to mobilize trained union members and volunteers in response to emergencies.[1] SERTs are not limited to serving union members—they also support non-union workers and the broader

1 The USW Tony Mazzocchi Center is one of several organizations funded by WTP. The USW SERT team is comprised of both union members and worker center members, providing the ability to provide response training in multiple languages.

community. Their approach includes creating community maps that identify key partners such as other WTP award recipients, faith-based groups, nonprofits, and local emergency services. SERT teams provide mental health support, personal protective equipment (PPE) training, and resiliency resources to affected workers and communities. They often stage operations at union halls, which serve as safe, centralized locations for distributing resources and offering peer support. The teams also conduct outreach to volunteers, ensuring they receive proper safety training and equipment.

A key aspect of their strategy is flexibility and follow-up. SERT teams assess community needs during initial deployments and plan return visits to offer additional training, such as mold remediation or mental health workshops, when communities are ready. Their work emphasizes mental health, safety, and community resilience, and they actively build relationships through annual outreach events to strengthen their network for future responses.

Day 4-10: Hazard Identification and Cleanup

Scenario: As flood waters start to recede four days after the event, new hazards emerge such as animal carcasses near farmlands and persistent chemical odors near the Elizabeth River.

Participants noted the need for credible, science-based information to address public fears and misinformation. They discussed the importance of identifying trusted sources, such as local health departments, universities, and federal agencies, to guide protective actions.

Unified command structures were recommended to manage multi-agency coordination. The importance of listening to frontline workers and community members was stressed, as these individuals often detect early signs of health issues or environmental risks. Participants also emphasized the importance of rumor control hotlines and the need to tailor messaging to different communities, especially those with limited English proficiency or historical mistrust of government.

Scenario: By Day 10, as cleanup efforts begin, rising temperatures and high humidity create dangerous conditions for workers and volunteers.

Participants discussed health protection strategies, including the distribution of PPE, hydration protocols, and training on mold exposure and chemical hazards. Representatives from volunteer organizations also shared information about structured volunteer training and safety protocols. However,

Joy Lee *(left)* **and Chip Hughes** *(right)* **share updates about what is happening during each day of the simulated scenario.**

there are challenges in managing spontaneous, unaffiliated volunteers. There is a need for credentialing systems to ensure safety and build trust. Mental health emerged as a critical concern. Participants emphasized the need for psychological first aid, peer support, and rotation of volunteers to prevent burnout.

Hemant Purohit, Ph.D., with George Mason University, shared how human-centered artificial intelligence (AI) can enhance emergency management by supporting human decision-making. He highlighted three key use cases: using AI for social listening to detect early signs of disaster through citizen-generated data; enabling rapid data processing to help emergency operations centers manage large volumes of information from sensors and social media; and improving dynamic risk analysis to identify high-risk areas within evacuation zones. Purohit is working with Virginia Beach and other partners to develop AI tools that integrate local knowledge, prioritize information, and visualize risks in real time. He emphasized that AI must be designed with human usability in mind and tailored to the specific needs of responders to be truly effective.

Hemant Purohit, Ph.D., *(front left)* shares more about the possibilities of using AI to collect data for disaster training and response.

Day 20-22: Mental Health and Training Resources

Scenario: Between days 20 and 22 following hurricane landfall, floodwaters start to recede, and cleanup operations continue. Volunteers and response teams face rising temperatures and humidity. Altogether, these issues lead to heat stress incidents and growing concerns about responders' and volunteers' physical and psychological health.

Participants highlighted the importance of structured health and safety training for volunteers, especially those engaging in hazardous tasks like mold remediation and chemical spill cleanup.

Participants reiterated the need to address the mental health of responders and volunteers. Of concern is the psychological toll of long deployments, exposure to traumatic scenes, and the stress of balancing personal and professional responsibilities during crises. Strategies such as peer support programs, psychological first aid, and structured decompression routines (e.g., end-of-day group meals and check-ins) were shared as effective practices. Participants also underscored the value of collaboration across sectors, such as government agencies, unions, faith-based groups, universities, and community organizations.

Joseph Scott, with VDEM, focused on the extensive training infrastructure available through VDEM and its partnerships with national training consortia. He outlined his role as a liaison between entities—such as the National Emergency Management University and the National Fire Academy—and state-level emergency management efforts. He emphasized the importance of foundational emergency management training, including Incident Command Structure 300 and 400 courses, and the Emergency Management Institute Basic Academy, which are offered at the state level with federal approval. Scott highlighted two major Federal Emergency Management Association (FEMA) and Department of Homeland Security-sponsored training consortia: the National Domestic Preparedness Consortium and the Rural Domestic Preparedness Consortium (RDPC). These consortia consist of specialized training institutions, many affiliated with universities, that offer a wide range of subject-matter expert courses, ranging from HAZMAT and rail safety to tactical awareness and peer support. He praised the availability of these programs, noting that they are free of charge and often include travel reimbursement. Scott also discussed the flexibility of RDPC in accommodating rural communities with smaller populations and limited resources. He encouraged attendees to explore these resources, emphasizing the importance of not reinventing the wheel but instead leveraging existing curricula and training tools.

Joseph Scott *(left)* **describes the importance of a whole community approach for training.**

Allison Weingarten shared information about the National Clearinghouse, which provides worker training resources, including training curricula, pocket booklets, and a mobile disaster app. These resources cover a variety of health and safety topics related to mold remediation, heat stress, urban flooding, hurricanes, wildfires, and more. Notably, these resources are designed to support organizations in delivering and customizing training for disaster response and recovery. Weingarten noted that the National Clearinghouse is maintained and operated by MDB, Inc., a support contractor for WTP.

Joshua Behr, Ph.D., with Old Dominion University, gave a presentation on the long-term impacts of disaster-related displacement and the development of tools to improve recovery outcomes. He emphasized that displacement following major events, such as hurricanes or floods, can last not just weeks, but months or even years, especially for low-income and medically fragile households. He described how prolonged displacement leads to a cascade of negative effects, including mental health issues, disruptions in education and employment, and mismanagement of chronic medical conditions. These impacts are often multi-generational and disproportionate in specific populations. To address these challenges, Behr and his team have developed the Convergence,

Joshua Behr, Ph.D., shares more details about the CIMA platform with meeting participants.

Inventory, Matching, and Assignment (CIMA) platform, a tool designed to support VOADs and long-term recovery groups. The platform facilitates better coordination between the supply of resources—such as materials, volunteers, and professional services—and the demand from the most at-risk households. It includes modules for case management, construction oversight, volunteer coordination, and material tracking, all aimed at improving situational awareness and resource allocation. Behr stressed that the platform was developed based on extensive input from faith-based recovery organizations and is intended to reduce mismatches between available support and actual needs. The CIMA platform is funded by federal and local sources and is designed to be shared widely across states.

James (Jamie) Burgess with the International Association of Fire Fighters (IAFF), focused on the critical importance of mental health in the fire service and emergency response.[2] He highlighted the persistent stigma around mental health issues, especially among long-serving firefighters, and emphasized the need for early intervention and peer support. The IAFF Center of Excellence and various peer support programs provide tailored mental health services for firefighters. Burgess said addressing mental health must begin at the start of a responder's career and be reinforced throughout, with competent support systems that understand the unique stressors of emergency service work.

James (Jamie) Burgess shares more about IAFF efforts to improve mental health in the fire service.

Day 45 and Beyond: Recovery and Research

Scenario: Forty-five days after the hurricane, ongoing challenges of disaster recovery persist, particularly the lack of visible rebuilding and mental and physical health concerns among affected communities. Participants emphasized the importance of continued monitoring for chemical exposure and the psychological toll of feeling forgotten.

John Staley, Ph.D., with the NC Occupational Safety and Health Education and Research Center at the University of North Carolina at Chapel Hill, presented on the critical role of communication and mental health in disaster response. Drawing from personal experience during the 2015 Ebola virus outbreak and his academic work, Staley underscored the need for better preparedness and training infrastructure. He described the work of the National Institute for Occupational Safety and Health (NIOSH)-funded Education and Research Centers and Centers for Total Worker Health, which focus on translating academic research into practical tools for occupational safety.

John Staley, Ph.D., describes the widespread reach of NIOSH funded Centers.

2 The IAFF is one of several organizations funded by WTP. The IAFF was founded in 1918 and represents more than 320,000 professional fire fighters and emergency medical personnel across the U.S. and Canada.

Aubrey Miller, M.D., with NIEHS, presented on the NIEHS Disaster Research Response (DR2) Program. He framed disasters like hurricanes as extreme environmental health events and stressed the urgency of applying scientific knowledge—especially in toxicology, epidemiology, and exposure science—quickly and transparently. Miller said there is a need to communicate with the public about what is known and unknown during a disaster. He cited examples like the East Palestine train derailment and Hurricane Harvey, where pre-existing partnerships enabled effective data collection and community support. He also introduced the new Health and Extreme Weather program, a National Institutes of Health (NIH) initiative that brings together multiple institutes to study the health impacts of weather-related disasters on at-risk populations.

Aubrey Miller, M.D., shares more about NIEHS research efforts following the East Palestine train derailment in Ohio.

Hotwash on Scenario

Meeting participants said they appreciated the integration of real-world presentations with group discussions and presentations, which helped ground theoretical exercises in practical experience. However, due to the limitation of time, some of the concerns were not comprehensively addressed or discussed. Participants also noted the need for more outreach to communities who may be overlooked in the aftermath of a disaster.

What Communities Want: Considerations Pre- and Post-Disaster

On the second day of the meeting (Sept. 18), **Tyson Vaughan, Ph.D., a sociologist with the U.S. Army Corps of Engineers**, presented on community resilience and the social dimensions of disaster recovery. He stressed that post-disaster priorities for communities often differ from pre-disaster priorities due to trauma and loss. “The trauma of experiencing a disaster changes priorities for a community,” said Vaughan. “They are living in a different world than the one they were living in before that disaster.” Vaughan advocated for post-disaster community engagement to understand evolving needs and values. He shared his fieldwork experiences from Japan, including the challenges of relocating coastal communities after tsunamis and the importance of maintaining cultural and environmental connections. He also discussed the Silver Jackets and Urban Waters programs as models for interagency collaboration.

Tyson Vaughan, Ph.D., discusses the social dimensions of recovery from the perspective of communities affected by disasters.

Lessons Learned from Recent Disasters

WTP staff, award recipients, and partner organizations shared lessons learned from recent disasters.

Lieutenant Jonathan Burg, Ph.D., a health scientist administrator for WTP, shared his experience leading recovery efforts during the Maui wildfires. As part of the Ready Reserve Corps, he coordinated environmental health, behavioral health, and educational support. Burg highlighted the importance of respecting Hawaiian traditions and culture during recovery, and noted the use of archaeological monitors during debris removal to minimize disruption to culturally important landscapes. He noted the challenges of managing hybrid and electric vehicle waste and emphasized the importance of community-led recovery planning, echoing Vaughan's point about reimagining communities and their needs post-disaster.

Janelle Rios, Ph.D., with the Prevention, Preparedness, and Response Consortium, discussed three major flooding events in Texas that have impacted local communities: the 1972 New Braunfels flood, Hurricane Harvey (2017), and the recent Guadalupe River flood (2025). Rios illustrated the devastating impact of flash floods and emphasized the recurring lesson of communication. Speaking on behalf of the disaster response community, Rios said we repeatedly fail to retain and apply lessons from past disasters. She advocated for proactive planning and public education using memorable frameworks like "partner, plan, prepare, and practice."

Kelley Davis, Ph.D., with the Nova Southeastern University South East Area Maritime Industry Safety Training, presented a comparative analysis of Hurricanes Helene and Milton in 2024. She explained how weather patterns like La Niña contributed to an unusually active hurricane season. Davis shared insights from emergency response efforts, including the rapid flooding of a rural Tennessee hospital and the successful use of temporary flood dams at Tampa General Hospital. She emphasized the need for updated flood maps, better building codes, and flexible health care systems to accommodate telehealth during disasters.

David Casavant and Israel Rosa, Jr., with Sustainable Workplace Alliance, shared more about hazards and remediation efforts following hurricanes in Florida and Puerto Rico. Casavant discussed the socioeconomic disparities in recovery, noting that affluent coastal residents often recover faster than inland, less affluent populations. Rosa detailed common post-disaster hazards like mold, lead, and asbestos, and described training programs such as the Occupational Safety and Health Administration's Disaster Site Worker classes. They highlighted efforts in Puerto Rico, including the use of Spanish language videos that offer safety training specific to tropical conditions and local construction materials.

David Casavant *(left)* and Israel Rosa *(right)* describe the storm surge predictions that were shared via news outlets prior to a recent hurricane in Florida.

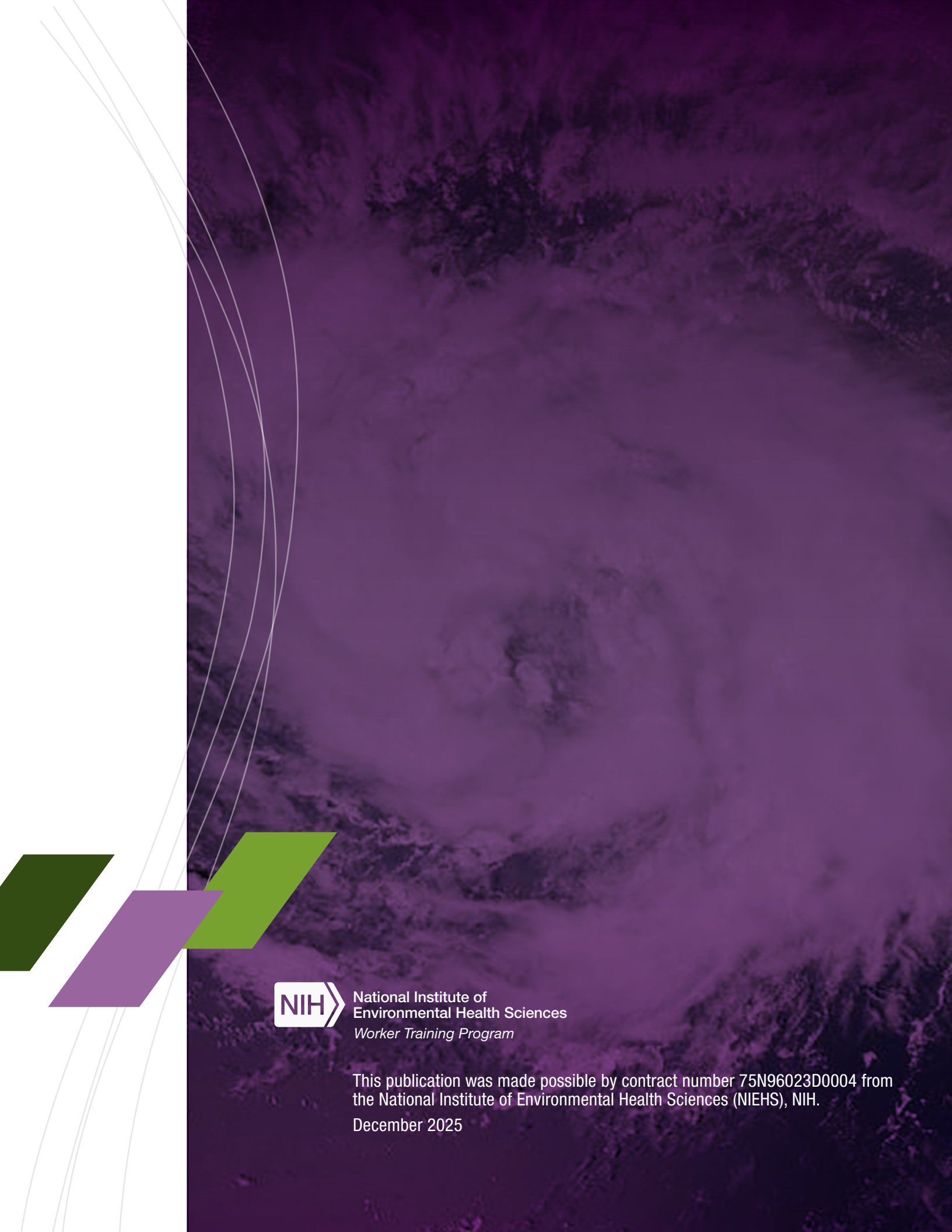
Marysel Pagán Santana, Dr.P.H. *(front)*, describes the impacts of recent flooding events in Puerto Rico.

Marysel Pagán Santana, Dr.P.H., with the Migrant Clinicians Network, spoke about ongoing recovery challenges in Puerto Rico seven years after Hurricane Maria. She focused on heat-related hazards in schools and the vulnerability of infrastructure, including power and communication systems. Santana emphasized the need for continued training and community engagement, especially as extreme weather events become more frequent. She shared examples of how her organization continues to adapt to local needs and maintain resilience through purpose-driven work.

Charles Austin and Renee' Call, with the International Brotherhood of Teamsters, discussed their disaster response initiatives and described the development of national and regional disaster teams, training programs (e.g., forklift operation, generator use, CPR), and partnerships with other unions. Their efforts include mobilizing supplies, creating disaster relief kits, and supporting mental health. They stressed the importance of community outreach, training integration, and leveraging union networks to respond effectively to disasters across the U.S., Canada, and Puerto Rico.

Where Do We Go from Here? Implementing Strategies and Resources to Support Workers and Communities

- **Demonstrate impact of federal funding.** There is a need to better articulate how grants and funds—especially those from NIH, NIEHS, and WTP—are utilized and their positive effects on communities.
- **Public investments and accountability.** The use of taxpayer dollars for training programs should be clearly communicated, highlighting how public investments benefit local communities.
- **Community outreach and engagement.** Communications and resources should be more available and friendly to communities. It is crucial to listen to and involve community members in decision-making.
- **Tailored messages for disaster response.** The importance of tailoring messages and instructions for individuals during disaster situations was highlighted as a key area for improvement.
- **Preparedness and integration.** There is interest in integrating lessons learned from exercises into broader preparedness efforts, especially in partnership with academic organizations and local governments.
- **Tabletop exercises and disaster scenarios.** Developing and refining tabletop exercises was recognized as valuable to help organizations clarify disaster preparedness and response procedures.
- **Data and AI.** There are several benefits of leveraging available data and AI for emergency response efforts.
- **Shifting and evolving organizational roles.** Participants shared concerns about changes in FEMA's role in disaster response and the shifting responsibilities towards state and local entities in this space. Additionally, participants shared the need for effective organization and communication under this evolving model.
- **Community input and collaboration.** Soliciting input from community members and organizations is essential, and there is untapped potential in groups like community health workers, community engagement response teams, and SERTs to strengthen preparedness systems.
- **Networking and shared knowledge.** The value of varied connections and shared experiences among different groups and regions was appreciated, reinforcing a sense of collective purpose and learning. Continual development of partnerships across federal, local, and academic sectors is key. Participants also noted the need for platforms or spaces to continue networking and conversations that were initiated during the meeting.



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