THE COST OF DISASTERS

Natural disasters have cost the United States over $1.79 trillion since 1980. The inevitability of natural disasters will impact the American population, infrastructure, and first responders. In an effort to minimize future impacts, the Department of Homeland Security (DHS) Federal Emergency Management Agency (FEMA) requires new innovative technologies and processes to support their response and recovery efforts and enable a more resilient future.

ADVANCING COMMUNITY AND INFRASTRUCTURE RESILIENCE

The DHS Science and Technology Directorate's (S&T) Community and Infrastructure Resilience (C&IR) Program comprises projects and activities related to the protection of life and property through a combination of research in new and emerging technologies, the development of standards and best practices, and enabling improved information sharing capabilities. In direct support to FEMA, the program aims to provide solutions addressing the complex problems related to natural disasters and man-made events and an approach to technology deployments that takes into account all hazards. The C&IR Program works to mitigate disaster impacts, aid recovery operations, and support efforts to bolster resiliency across communities and individuals. The program is empowering all levels of government to collect and monitor key threats and improve abilities to share this information across their communities. It accomplishes its goals through three distinct project areas: Disaster Recovery, Flood, and Community Resilience Testbeds.

MEETING FEMA AND FIRST RESPONDER REQUIREMENTS

The C&IR Program directly addresses the requirements of FEMA and first responders. Through the development of technologies, research in critical topic areas, and the deployment of best practices across federal, state, local, and private organizations, C&IR is assisting in the mitigation of disaster-based risks imposed upon our communities.

ACCOMPLISHMENTS TO DATE

- Deployment and testing of low-cost flood sensors';
- Developed a Team Awareness Kit training video for wildland firefighters;
- Developed an IPAWS Program Planning Toolkit with frequently asked questions, a fact sheet, and train-the-trainer guide;
- Enhancing capabilities within FEMA's HURREVAC;
- Advanced information-sharing capabilities in collaboration with the Central United States Earthquake Consortium (CUSEC) for Shaken Fury;
- Partnered with the Association of State Floodplain Managers (ASFM) to update standards for floodproofing barriers;
- Developing new categories and test protocols for new disaster-proofing technologies intended to reduce damage to residential structures, public assets, and critical infrastructure;
- Extending national standards for new disaster-proofing technologies; and
- Establishing community resilience testbeds between local communities, research entities, and private-sector partners that serve as proving grounds to assess, evaluate, and innovate new approaches and technologies for resilience and risk reduction.

UPCOMING MILESTONE (NEXT 1-2 YEARS)

- Development and demonstration of fuel cell-powered disaster truck for power generation;
- Deployment of the First Aid for Severe Trauma (FAST) training for high school students;
- Develop methods for streamlining disaster housing inspections; and
- Complete efforts for WUI satellite fire detection.

PERFORMERS/PARTNERS

CUSEC, Memphis, TN; U.S. Army Corps of Engineers EDRC, Vicksburg, MS; Utah State U., Logan, UT; Corner Alliance, Washington, DC; University of Mississippi, Oxford, MS; Kentucky Division of Water, Frankfort, KY; Massachusetts Institute of Technology-Lincoln Lab., MA; Pacific Northwest National Laboratory, Richland, WA; Deltares, Silver Spring, MD; National Alliance for Public Safety GIS, Washington, DC; National Science Foundation, Alexandria, VA; and ASFM, Madison, WI.