



HAZARD MITIGATION IN DISASTER RECOVERY

As a nation we may never have a greater opportunity to seriously consider how to reduce the mounting toll that follows foreseeable natural events. The passion and energy of those who believe in the reality of climate change bring an entire new breath of oxygen into conversations about what sort of future we will build for the next generations. We are building the future every day: one cubic yard of fill at a time, one building at a time, and one road at a time. We have a choice: We can build safely and properly so as to not exacerbate existing problems caused by improper construction and development, or we can continue to do business as usual and build an unsustainable future of misery, waste, and needless destruction.

A 2005 study by the Multihazard Mitigation Council of the National Institute of Building Sciences documented that every dollar spent on mitigation that corrects the past mistakes of building and planning saves society \$4, on average. Other studies from the Wharton School at the University of Pennsylvania and the insurance giant Swiss Re indicate that higher design standards have a far greater payback than 4–1. In any case, those higher standards place the cost of the development on those who develop, rather than permitting those costs to be improperly externalized to society as a whole.

KEY POINT #1

Wise land-use planning prior to any natural event becoming a disaster is the best and most cost-effective means of reducing risk from hazards.

KEY POINT #2

We are now clearly on a path toward mounting losses from foreseeable natural events. Development that externalizes future costs to disaster survivors, taxpayers, and the environment is poor planning and community development.

KEY POINT #3

Effective hazard mitigation in the wake of a major disaster requires a carefully planned “Whole Community” approach when assessing damage and determining the way forward. A speedy recovery rarely leads to rebuilding more resiliently and safely.

KEY POINT #4

Realize that a variety of funding sources that support hazard mitigation become available following a disaster.



KEYPOINT #1:

Wise land-use planning prior to any natural event becoming a disaster is the best and most cost-effective means of reducing risk from hazards.

Many planners and other local officials say there is just not enough money to do an effective job of hazard mitigation. However, as indicated in studies by the Wharton School of the University of Pennsylvania and the insurance company Swiss Re, safe design from the beginning of a project through building codes and standards has a huge

payback. We believe that safe zoning standards, which protect the property and rights of all in the community, have an even greater payback to the community than good building codes. More specifically, Swiss Re reports that “Evidence suggests that every dollar spent on disaster risk reduction has a ten-to-one cost benefit ratio, and our own studies show that we can avert up to 65% of climate risks using cost effective measures.” (See References for links to these studies.)

KEYPOINT #2:

We are now clearly on a path toward mounting losses from foreseeable natural events. Development that externalizes future costs to disaster survivors, taxpayers, and the environment is poor planning and community development.

Within the past decade, the United States has experienced a series of devastating natural disasters, including near-record flooding in Colorado; Hurricanes Sandy, Katrina, and Rita; the tornado outbreaks of 2011 and 2012; and an annual slew of increasingly destructive wildfires. These disasters have resulted in vast human death and misery, destruction of homes and infrastructure, and bankruptcy for local businesses. The devastation resulting from foreseeable natural events has increased substantially

in recent years. Sadly, there seems to be no reason to believe that this toll of disasters will in any manner diminish. Quite to the contrary, most climate experts and economists expect that the United States will continue to experience escalating damages from natural hazards such as severe weather, floods, and wildfires.

Many organizations have issued information documenting the fact that the risks and consequences from natural events are escalating wildly. See References for a link to Swiss Re’s documentation in chart form.



KEYPOINT #3:

Effective hazard mitigation in the wake of a major disaster requires a carefully planned “Whole Community” approach when assessing damage and determining the way forward. A speedy recovery rarely leads to rebuilding more resiliently and safely.

Hazard mitigation is more than rebuilding capital infrastructure; it involves rebuilding people’s lives.

A government-centric approach to disaster recovery is not enough to meet the challenges posed by a catastrophic incident. The Whole Community approach reinforces the fact that we must leverage all of the resources of our collective team in preparing for, protecting against, responding to, recovering from, and mitigating against all hazards, and that collectively we must meet the needs of the entire community in each of these areas. Both the com-

position of the community and the individual needs of community members, regardless of age, economics, or accessibility requirements, must be accounted for when planning and implementing disaster strategies.

This Federal Emergency Management Agency (FEMA) concept is based on three principles that represent the foundation for Whole Community:

1. Understand and meet the actual needs of the whole community. Community engagement can lead to a deeper understanding of the unique and diverse needs of a population, including its demographics, values, norms, community structures, networks, and relationships.
2. Engage and empower all parts of the community. Engaging the whole community and empowering local action will better position stakeholders to plan for and meet the actual needs of a community and strengthen the local capacity to deal with the consequences of all threats and hazards.
3. Strengthen what works well in communities on a daily basis. A Whole Community approach to building community resilience requires finding ways to support and strengthen the institutions, assets, and networks that already work well in communities and that are working to address issues that are important to community members on a daily basis.

There are several post-disaster planning initiatives that are excellent examples of embracing the Whole

LOUISIANA LONG-TERM COMMUNITY RECOVERY PLANNING FACILITATES THE RETURN TO NORMAL COMMUNITY PROGRESS



Community approach to disaster recovery efforts that focus on making communities more resilient through hazard mitigation. Following Hurricane Katrina, a regional planning initiative, the Louisiana Recovery Authority made a conscious effort to bring together a wide-ranging set of stakeholders from 20 Louisiana coastal parishes to provide a regional vision for coastal Louisiana. More than 23,000 people gave their input during the development of the *Louisiana Speaks Regional Plan*.

Another highly successful program that embraced the Whole Community approach took place in Hillsborough County, Florida, in 2008 with the *Hillsborough County Countywide Post-Disaster Redevelopment Plan* (PDRP). The essence of the work effort was to develop a post-disaster redevelopment plan in a “blue skies,” pre-disaster environment, not waiting until the area suffered a catastrophic hurricane. More than 100 local stakeholders participated over the course of 18 months. A series of subcommittees were created that viewed post-disaster recovery from a holistic perspective, understanding that all parts of the community are interrelated. The various elements included land use, transportation, economic redevelopment, housing, health and social services, public and private infrastructure and facilities, environmental restoration, financial administration, and public outreach. In addition to the work of the PDRP executive committee and technical advisory committees, public outreach efforts included six public workshops, a project webpage, and an informational video.

KEYPOINT #4:

Realize that a variety of funding sources that support hazard mitigation become available following a disaster.

The best source of funding to prevent disasters also prevents the improper externalization of costs from development to society at large through good planning practices: safe and proper zoning, higher design and building standards, and low-impact land development techniques.

Following a disaster, considerable federal funding is available for communities to be able to implement hazard mitigation projects. FEMA provides funds to local governments to underwrite 75 percent of the cost of repairing infrastructure; however, the agency also provides special funds if communities want to become more resilient. These funds are provided through the Hazard Mitigation Assistance programs, which provide a critical funding opportunity to reduce risk to individuals and property from natural hazards while simultaneously reducing reliance on federal disaster funds. The package of funding programs includes the Hazard Mitigation Grant program, Pre-Disaster Mitigation program, and the Flood Mitigation Assistance program.

Another important source of disaster funds comes from the federal Department of Housing and Urban Development (HUD) through its Community Development Block Grant Disaster Recovery program. It is focused on rebuilding affected areas and provides crucial seed money to start the recovery process. HUD is interested creating resilient communities; in fact, during the summer of 2014, HUD has released a new funding opportunity—the Disaster Resilient Competition Initiative. HUD Secretary Julian Castro characterized this effort by stating, “This competition will help spur innovation, creatively distribute limited federal resources, and help communities across the country cope with the reality of severe weather that is being made worse by climate change.”

A billion dollars is being targeted to eligible communities across the United States that experienced a declared disaster from 2011 through 2014. HUD is looking for creative new options to rebuild communities in ways that are more resilient and sustainable.

In addition to the FEMA and HUD funding programs, local governments need to be aware that there are other funding sources that can be used creatively to achieve effective hazard mitigation. For example, some states have funds set aside to purchase environmentally sensitive lands. The purchase of environmentally sensitive lands can also be a win for hazard mitigation, as it is common for these lands to be situated in a floodway or adjacent to major waterways.

An excellent comprehensive data source on funding programs is the publication *Planning and Building Livable, Safe & Sustainable Communities: The Patchwork Quilt Approach*. A link is provided in Resources.

KEY TAKE-AWAYS

- Avoid development in hazard risk zones. Because economics will often drive development into such areas, they must be developed with much higher standards of safety than are currently in general use. Four feet of freeboard above FEMA-set Base Flood Elevations is one specific example.
- Following disasters, look for opportunities to properly plan for and mitigate hazards, rather than quickly rebuilding so as to return to “normal.” Such quick and irresponsible planning only serves to create disasters in the future.
- Remember, the post-disaster “window of opportunity” lasts a relatively short period of time; residents and businesses will quickly pressure their local elected officials to let them return to their homes and workplaces.
- After a disaster, opportunities to create greater resilience are only limited by the imagination of the community, especially those controlling decisions.
- Not all hazard mitigation solutions have to be million-dollar solutions. Higher codes and standards, prearranged agreements, and local collaboration are important tools that can be used for hazard mitigation.
- Speed of recovery is not always effective in building a more resilient community. Taking time to do proper deliberate planning is more important.
- Participation of the “Whole Community,” involving all stakeholder groups including underserved populations, is essential to long-term recovery.

RESOURCES

Conrad, David, and Edward A. Thomas. 2013. “Reforming Federal Support for Risky Business.” In *15 Ways to Rethink the Federal Budget*, ed. Greenstone, Harris, Li, Looney and Pastashnik. Brookings Institute Hamilton Project. Available at www.brookings.edu/research/papers/2013/02/reform-federal-support-risky-development.

FEMA, Federal Emergency Management Agency. 2011. *Lessons in Community Recovery: Seven Years of Emergency Support Function #14 Long-term Community Recovery from 2004 to 2011*. Available at www.fema.gov/pdf/build/ltrc/2011_report.pdf.

Grand Forks, North Dakota. 2011. *Grand Forks Flood Disaster and Recovery Lessons Learned*. Available at www.grandforksgov.com/about-grand-forks/state-of-the-city/flood-recovery.

Hillsborough County, Florida. 2014. Land Development Code, Section 6.11.112—Disaster Relief Dwellings; Section 6.11.115—Disaster Relief Communities; and Section 6.11.116—Disaster Relief Structure for Non-Residential Uses.

Hillsborough County, Florida. *Post-Disaster Redevelopment Plan*. Available at www.hillsborough-county.org/index.aspx?NID=1793.

Louisiana Recovery Authority. *Louisiana Speaks Regional Plan*. Available at <http://lra.louisiana.gov/index.cfm?md=subsite&tmp=home&ssid=1>.

Swiss Re. For research information, see, e.g., “Action on Climate Change Gears Up.” 2014. Available at www.swissre.com/rethinking/climate_and_natural_disaster_risk/Action_on_climate_change_gears_up.html; “Building a Resilient Energy Gulf Coast,” available at http://media.swissre.com/documents/Entergy_study_exec_report_20101014.pdf; and “Swiss Re’s sigma on natural catastrophes and man-made disasters in 2011 unveils USD 116 billion in insured losses and record economic losses of USD 370 billion,” available at http://www.swissre.com/media/news_releases/nr_20120328_sigma_disasters_2011.html.

Thomas, Edward A., and Terri Turner. 2011. "Climate Change and Emergency Management: Adaptation Planning." American Bar Association, Section of State and Local Government, *State and Local Law and News*, Vol. 34, No. 3, Spring. Available at: www.americanbar.org/content/dam/aba/publications/state_and_local_law_news/sl_34_3_thomas_turner.authcheckdam.pdf.

Thomas, Edward A. "Natural Hazards and the Law." 2012. In *Natural Hazard Mitigation*, ed. Alessandra Jerolleman and John J. Kiefer. CRC Press.

Thomas, Edward A., Alessandra Jerolleman, Terri Turner, Darrin Punchard, and Sarah Bowen. 2013. *Planning and Building Livable, Safe & Sustainable Communities: The Patchwork Quilt Approach*. Natural Hazard Mitigation Association. Available at <http://nhma.info/publications/the-patchwork-quilt>.

Thomas, Edward A., and Lynsey R. Johnson. 2014. "Turning *Koontz* into an Opportunity for More Resilient Communities," *National Wetlands Newsletter*, March/April. Vol. 36, no.2. Available at www.americanbar.org/content/dam/aba/administrative/state_local_government/land_use.authcheckdam.pdf.

The Wharton School Center for Risk Management and Decision Processes. Czajkowski, Jeffrey, Howard Kunreuther, and Erwann Michel-Kerjan. 2012. *A Methodological Approach for Pricing Flood Insurance and Evaluating Loss Reduction Measures: Application to Texas*. Available at http://opim.wharton.upenn.edu/risk/library/WhartonRiskCenter_TexasFloodInsurancePricingStudy.pdf.

This briefing paper was written by Edward Thomas, president of the Natural Hazard Mitigation Association, and Lincoln Walther of Lincoln Walther Consulting, LLC. Contact Thomas at edwathomas@aol.com or (617) 515-3849 and Walther at lincolnwalther@gmail.com or (772) 485-4610.

Cover photo © Jocelyn Augustino/FEMA; photo page 2 © Jim Schwab

Copyright © 2014 by the American Planning Association, 205 N. Michigan Ave., Suite 1200, Chicago, IL 60601-5927. www.planning.org.