



Photograph by Joshua Bernard

Safe Growth and Natural Disaster

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In May 2006, the Merrimack Valley of Massachusetts was drenched with rain. Rivers swelled to an all-time high. Flood waters overwhelmed sewage systems, caused pipes to burst, and gouged out supports to bridges.¹ Federal reimbursements to cities, towns, and individuals in the disaster areas were estimated at \$90 million.² Often it is vulnerable populations whose homes are damaged and who suffer most from the breakdown of infrastructure.

Scientists are predicting more-frequent and more-intense disasters. And since the 2005 Gulf Coast flooding, insurance companies have become increasingly alarmed.³ On Cape Cod, some firms are dropping policies on existing homes and refusing to insure new ones. The Massachusetts Office of Coastal

Zone Management is concerned about the increasing intensity of storms, and a high-level commission is developing recommendations on issues such as “sea-level rise, erosion, flooding, and failing seawalls.”⁴

While policymakers are wondering how to do a better job of preparing for the worst, the real estate professionals, housing advocates, business leaders, and planners in the smart growth movement have been asking, How can we build the best cities and suburbs possible? The two groups are beginning to realize that they need to meet and discuss the idea of *safe* growth. After all, the same 1,500 miles of coastline that are vulnerable to storms also host the old fishing villages and ports that are targets for redevelopment.

Good planning necessitates identifying the land that should be off-limits to development, whether the purpose is to protect the natural environment, limit public infrastructure costs, or keep floods and other disasters from spinning out of control.

Out of Harm's Way

Federally subsidized flood insurance and public infrastructure investments have had the unintended consequence of encouraging people to settle in hazard-prone areas. Population growth and consumer preferences compound the problem. Coastlines might host as much as 75 percent of the U.S. population by 2025, according to some estimates. For some high-risk locations, like the Gulf Coast's bayou, where generations of families with unique cultures are entrenched, staying out of harm's way is easier said than done.

Communities can redirect growth and development to more appropriate locations, but first they need to know where the hazard-prone areas are. In Massachusetts, there is currently no one information resource. Most existing floodplain maps were produced more than 25 years ago. Fortunately, the Federal Emergency Management Agency has launched a national effort to modernize floodplain mapping using geographic information systems. New England's states and regional planning agencies are now receiving grants to develop predisaster mitigation plans to map floodplains and areas vulnerable to hurricane surges and high waves.⁵ The plans superimpose existing buildings and the build-out scenario (showing where future development will occur under current zoning) on the hazard zones. That way, residents will be able to see where current and future development is inconsistent with disaster prevention.⁶

Once the places prone to disaster are identified, communities have several tools for preventing harm. One option, albeit the most expensive one, is to take the land off the private market by putting it into public ownership. Using a land conservation easement (which restricts use but allows the property owner to keep the title) is less expensive than outright purchase. Often hazard-prone land is also environmentally sensitive habitat for animals, plants, and

birds, so financial partnerships with private land trusts and conservation groups are a possibility.⁷

Another option is to downzone the land, but the potential impact on property values makes that approach controversial. Nevertheless, the more homes, roads, and parking lots that are built on a floodplain, the less that flood waters can be absorbed in the soil, increasing the likelihood of harm to people and property.⁸ That is why some communities are experimenting with an approach called *transfer of development rights*. Owners of property on unstable slopes in Scottsdale, Arizona, for example, can now take the right they have to develop new units under current zoning and sell that right to property owners in safer, less environmentally sensitive parts of the city.

Another option is to construct stronger, disaster-prone buildings and retrofit existing structures—putting homes near the ocean on stilts, removing mechanical systems from flood-prone basements, and anchoring and wind-bracing buildings. In some cases, seawalls, tide gates, and improved storm-water drainage systems can help, but such investments may have negative environmental impact.

Green Infrastructure and Development

Barrier islands, beach dunes, salt marshes, wetlands, and intact floodplains are built-in protection. This green infrastructure holds back flood waters, softens pounding waves, absorbs storm surges, and protects the integrity of existing ecosystems. Salt marshes, for example, can help communities adapt to higher sea levels by spreading out over time. Increasingly, people are recognizing that nature needs space and that hemming in dynamic ecosystems with sea walls, buildings, and asphalt may not be the best idea.

Additionally, some towns are reducing the amount of water that flows into rivers and sewers during storms. Developers have long used the technique of building

manmade retention ponds to capture storm water. *Low-impact development* takes the concept to the next level with site planning that increases the natural absorption of water into underground storage—which retains water while recharging aquifers. Low-impact development techniques include clustering buildings to reduce the footprint of impervious surface and to maximize open space; using permeable substances for driveways and patios; narrowing roads and removing curbs; and installing rain barrels and roofs that have gardens on top.

Investing in Safe Growth

Good planning necessitates identifying the land that should be off-limits to development, whether the purpose is to protect the natural environment, limit public infrastructure costs, or keep floods and other disasters from spinning out of control. It's not just about where we build, but how we build. Prevention is just as important—if not more so—than postdisaster planning.

An essential complement to this approach, however, is ensuring adequate land is available and suitable for development. Otherwise, actions to prevent disaster will only limit growth. For growth to be safe, public infrastructure investments in sewer, water pipes, roads, public transit, schools, and the like should be targeted to locations that are out of harm's way. And, for growth to be smart, development needs to put homes, jobs, and shopping close to one another, while providing affordable housing and transportation options to all. Putting safe and smart together can ensure that the most vulnerable populations are out of harm's way and can revitalize communities at the same time.

The challenge for proponents of smart growth is to recognize that not all locations now understood as smart are also safe. More planners need to take disaster prevention into account. In California, for example, where floods and earthquakes are not uncommon,

cities and towns are required to integrate a safety element into comprehensive plans. Closer to home, Plymouth and Falmouth have started transfer-of-development-rights programs to encourage development outside of coastal hazard zones; Scituate and Quincy are helping residents elevate homes and flood-proof them.⁹ Integrating hazard prevention into current smart growth policies and funding decisions at the state level, is the next step.

After Katrina laid bare how bad planning hurts the poor, Anna Quindlen wrote, “The long view is not about patching levees, or building houses or assigning blame. It’s about changing the way we all live now.”¹⁰ The best way to start changing is to begin the dialog between disaster prevention experts and smart growth proponents.

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Endnotes

¹ See “May 2006 Extreme Rain Event and the Response of the Coastal Waters in the Massachusetts Bays System,” http://www.mass.gov/envir/massbays/pdf/springrains_2006.pdf.

² Representative Joyce A. Spiliotis in “State May Bail out Towns on Flood Bills,” Boston Globe, October 22, 2006, http://www.boston.com/news/local/massachusetts/articles/2006/10/22/state_may_bail_out_towns_on_flood_bills.

³ M.P. McQueen, “Home Insurance Premiums Increase Across the U.S.,” *The Wall Street Journal Online*, March 24, 2006, <http://www.realestatejournal.com/buysell/taxesandinsurance/20060324-mcqueen.html> (subscription required to access).

⁴ Letter to the public from Susan Snow-Cotter, director of the Office of Coastal Zone Management, August 2, 2006.

⁵ The federal Disaster Mitigation Act of 2000 calls for states to develop plans to reduce natural-hazard risks as a condition of FEMA funding.

⁶ See David R. Godschalk, “Buildout Analysis: A Valuable Planning and Hazard Mitigation Tool,” *Zoning Practice*, March 2006.

⁷ Jim Schwab and Kenneth C. Topping, chapt. 5, “A Planner’s Toolkit,” in *Planning for Post-Disaster Recovery and Reconstruction*, <http://www.planning.org/katrina/reader/reports.htm>.

⁸ Some municipalities adopt No Adverse Impact floodplain performance standards to protect the rights of other property owners.

⁹ Personal communication with Massachusetts Executive Office of Environmental Affairs staff, November 2006.

¹⁰ Anna Quindlen, “Don’t Mess With Mother,” *Newsweek*, September 15, 2005, www.msnbc.msn.com/id/9287026/site/newsweek.

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