The Right Things in the Wrong Places

Friday March 14, 2014
8:30-10:00 AM
We have a rich history of building houses, businesses, and even entire communities in unsuitable places, where the threat of fires, floods, and other foreseeable disasters pose staggering costs to the public. Zoning can and should steer people away from dangerous locations, and the scope of the police power is broad enough to allow government to limit efforts to rebuild once disaster strikes. This panel explores zoning tools that can be used to prevent construction—or reconstruction—in the wrong places.
Moderator:
**Orlando Delogu**, Emeritus Prof. of Law, Univ. of Maine School of Law

Speakers:
**Chris Duerksen**, Senior Counsel, Clarion Associates
**Julian Juergensmeyer**, Ben F. Johnson Professor, Georgia State University School of Law
**Dwight Merriam**, Partner, Robinson, Cole
Orlando Delogu
An average of 1,253 tornadoes occur in the United States each year.
# U.S. Tornado Deaths

<table>
<thead>
<tr>
<th>Year</th>
<th>Deaths</th>
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<tbody>
<tr>
<td>2000</td>
<td>41</td>
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<td>2001</td>
<td>40</td>
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<td>2002</td>
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<td>2010</td>
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<tr>
<td>2011</td>
<td>553</td>
</tr>
<tr>
<td>2012</td>
<td>70</td>
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</table>
Hawaii – Mauna Loa

- 1843 erupted 33 times
- 1868 8.0 magnitude earthquake
- 1950 destroyed homes, a gas station, church and cemetery
- 1983 $7 million damage to roads and structures
- 1984 came within four miles of Hilo
The last house on Holland Island in Chesapeake Bay, which once had a population of almost 400, finally toppled in October 2010. As the water rose and the island eroded, it had to be abandoned. Astrid Riecken for The Washington Post, via Getty Images
Islands of Seattle
Based on 240' sea level rise
Approximate level if all the world's ice sheets melted
Rising Sea, Sinking Land

Tide gauges along the East Coast show a long-term increase in relative sea levels, in part because the ocean is rising and in part because areas of the coast are sinking.

A meteor impact about 35 million years ago weakened sediment around what is now Chesapeake Bay, which may contribute to rapid land subsidence in the area.
CUMULATIVE SEA LEVEL RISE above the 1900–20 average

Norfolk, Va.

The Battery
Hurricane Sandy

- $25,000,000,000.00 lost business activity
- 8,100,000 homes lost power
- 57,000 utility workers -- 30 states and Canada
- 1,008 beds in tent city for relief workers in Rye, NY
- 78% of respondents to a Quinnipiac University poll “believe we are experiencing large storms such as Sandy and Irene more frequently as a result of climate change.”
Hilo, Hawaii April 1, 1946

- 55-foot high waves
- 173 killed in Hilo
- 163 injured
- 488 buildings destroyed
- 936 others damaged
- $25 million damages (1946 dollars)
New study points to possibility of 'extreme' tsunami in Hawaii

Posted: Dec 20, 2013 2:45 AM EST
Updated: Dec 20, 2013 3:34 PM EST

By Ben Gutierrez - bio | email
Wellington, Washington
February 28, 1910

• 96 people killed
Yarnell Hill Fire
June 30, 2013

• 19 City of Prescott firefighters killed
2012 Drought

- Similar to the Dust Bowl
- Largest in 50 years
- 54.6% of lower 48 was in drought June 2012
Palmer Z Index
Short-Term Conditions

June 2012

National Climatic Data Center, NOAA

-2.75 and below
-2.00 to -2.74
-1.25 to -1.99
-1.24 to +0.99
+1.00 to +2.49
+2.50 to +3.49
+3.50 and above
Evacuation order lifted for California mudslide area

February 10, 2010 11:57 a.m. EST

Heavy weekend rains caused mudslides and damaged houses in La Canada Flintridge, California.
Each year, landslides in the U.S. cause $3.5$ billion in damage and kill 25-50 people.

May 1980 eruption of Mount St. Helens
  - Largest landslide in history.
  - Rockslide debris avalanche would fill 250 million dump trucks traveled about 14 miles,
  - Destroyed nine highway bridges, numerous private and public buildings, and many miles of highways, roads, and railroads.
A Note on Biggert-Waters

- National Flood Insurance Program (1968)
  - Cheap insurance
  - Predictable outcomes
    - Payments often exceeded premium revenues
    - Owners allowed to rebuild
    - Deficits ballooned
• Biggert-Waters Flood Insurance Reform Act
  – Rates reflect true cost of risk; partially removes incentive to rebuild in the wrong place
  – A new generation of flood maps
• Weak link is local government
  – Unwilling to regulate
  – Need spending restrictions on infrastructure
To Summarize...
What We Need To Do

1. Get over the reluctance to regulate
   a. Zoning
   b. Subdivision controls

2. We need to stop bailing out people who choose to locate in harm’s way
   a. Eliminate subsidized insurance
   b. Stop lending on properties in high risk areas
   c. Condition disaster relief on relocating
   d. Put the infrastructure in the right place
Chris Duerksen
Tropical Storm Irene: Flooding in Vermont’s Mad River Valley
Tropical Storm Irene: Mad River Valley Flooding

Damage Estimates:
- Roads - $170-250 million (500 miles of damaged roads and 200 damaged bridges)
- Homes and Businesses – more than $36 million in total FEMA aid (more than 6,727 FEMA aid registrations, 3,169 VT residents given housing assistance)
- Crops – Nearly 1,300 acres of crops destroyed (Corn, hay, vegetables, pasture)
- Other damage - deposits of silt, gravel, and debris, fences destroyed, land gouges
The Climate Change Adaptation/Resiliency Imperative

- **Climate Change Adaptation**: Approaches and strategies to adapt to or become more resilient in dealing with unavoidable impacts of climate change and associated natural hazards.

- **Climate adaptation and resiliency** should be addressed in comp plans and codes—not just emergency response plans.
The Challenges Of Climate Change Adaptation

- Local impact data lacking or inconclusive
- Multiple and widely varying climate change impacts
- Differing community resources and contexts (urban, rural, coastal, interior)
- Lack of political willpower to restrain development in hazard areas
- Multiple local/state/federal agencies
The Legal Framework For Addressing Climate Adaptation And Natural Hazards

- National Flood Insurance Act of 1968 (42 USC 4104c) and Biggert-Waters Flood Insurance Reform Act of 2012 (129 Stat. 916)
- Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5121 et seq.)
- Coastal Zone Management Act (16 USC 1451 et seq.)
- Federal Wildfire/Wildland Fire Management
- Clean Water Act (33 USC 403; 1251)—Dredge and fill and storm water control
Making The Planning/Zoning Hazard Resiliency Connection

• Hazard planning: Natural extension of sustainable/smart growth land use planning--focus on use of existing proven smart growth tools = SAFE GROWTH

• Three primary categories of approaches
  – Protect vulnerable undeveloped areas from development
  – Protect people and assets already in vulnerable areas
  – Encourage sustainable development in appropriate, less-vulnerable areas
Getting Started: Vulnerability Planning Basics

- Scope CC impacts--Identify vulnerable areas
- Risk assessment
- Prioritize planning areas

<table>
<thead>
<tr>
<th>Planning Areas with Systems that are...</th>
<th>Low Vulnerability</th>
<th>High Vulnerability</th>
</tr>
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<tbody>
<tr>
<td>High Risk</td>
<td>May be priority planning areas</td>
<td>Should be priority planning areas</td>
</tr>
<tr>
<td>Low Risk</td>
<td>Are unlikely to be priority planning areas</td>
<td>May be priority planning areas</td>
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Identify areas in the community that:

• Are undeveloped (e.g., floodplains, wildlife habitats, steep slopes), and

• Have a higher vulnerability and risk due to climate changes (violent storms, sea-level rise, wildfires)
#1: Protect Vulnerable Areas From Development: Menu of Tools

- Clarify and strengthen protective regulations for vulnerable areas
  - Steep slope standards
  - Stream buffers
  - Tree protection provisions
  - Increase minimum lot sizes
#1: Protect Vulnerable Areas From Development

Consider supplements to regulations:

• Provide density bonus incentives for cluster development
• Evaluate and adjust development subsidies provided in vulnerable areas (roads, water/sewer extensions)
• Purchase and transfer of development rights
• Conservation easements
#2: Protect People And Assets in Vulnerable Areas

- Traditional approaches:
  - Engineered protective structures—bank armoring
  - Stream channelization
  - Elevating and retrofitting buildings
  - Relocating people, infrastructure, buildings
#2: Protect People And Assets In Vulnerable Areas: Smart Growth Approaches

Adopt No Adverse Impact Stormwater Management Approach:

- Definition: Actions of one property owner are not allowed to adversely affect the rights of other property owners in terms of:
  - Flood peaks, flood velocities, increased erosion/sedimentation, etc.
- Based on principle that flood control is a local responsibility—goes beyond elevating structures one foot above 100-year flood
#2: Protect People And Assets In Vulnerable Areas: Green Infrastructure Stormwater Management

1. Protect natural resources and open space
2. Promote compact development and infill
3. Design complete smart streets that reduce imperviousness
4. Encourage efficient parking supply
5. Adopt green infrastructure stormwater provisions
#2: Protect People And Assets In Vulnerable Areas: Green Infrastructure Stormwater Management

• Remove Barriers
  – Provide more flexibility in meeting parking requirements--count on-street spaces,
  – Encourage permeable pavement as preferred alternative in parking lots.
  – Allow street-side swales to replace curb/gutter in low-traffic areas
#2: Protect People And Assets In Vulnerable Areas: Green Infrastructure Approaches

• **Create Incentives**
  – Grant density bonus and storm water management credit for green roofs
  – Reduce off-street parking requirements if bicycle parking racks provided
#2: Protect People And Assets In Vulnerable Areas: Green Infrastructure Approaches

- Fill Regulatory Gaps
  - Adopt standards requiring minimum % of parking lot to drain into landscaping
  - Strengthen stormwater management regulations
  - Limit driveway lengths and required shared driveways
#2: Protect People And Assets In Vulnerable Areas

- Amend non-conforming building regs and building codes to promote safe redevelopment in vulnerable areas
- Update comprehensive and hazard mitigation plans
- Pursue non-structural flood mitigation measures such as parkland acquisition for vulnerable sites
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Julian Juergensmeyer
The Wrong Places: Turkish Response to Development in Earthquake Prone Regions
Turkey is one of the world’s most active seismic zones.
Transformation of Areas under Disaster Risk [Law 6306 (16 May 2012)]

- Published 31 May 2012
- Intended to address the problems presented by residents at risk of death from earthquakes due to precarious living situations
- Two main sections
  1.) Risky Structures
  2.) Risky Areas

Damaged buildings in Erics, Turkey after 7.2 earthquake in which 279 people died
Risky Structures

• Owners must test the building by paying a contractor
• If the building is found risky, flat owners have a meeting to determine what they want to do
  – If all owners want to stay, they may tear down the building and construct a new building after contracting with a private developer, the flat owners allocate the risk

A crane lifts debris after Ercis earthquake
Risky Structures

• Most of the time the owners will agree to the building destruction if they can rebuild the new building with more floors
  – Then they can sell the floors, with selling rights based on previous flat ownership in demolished building
    • But the city does not offer a variance, the demolished buildings are usually just outdated and therefore not up to the code of the surrounding area
• If 2/3rds of the owners are in favor, majority wins but those that don’t agree may be able to sell flat as is or be forced to comply
  – If owners don’t want to participate in building new building, they can try to sell their ownership/flat to a new owner
• If enough owners don’t agree, the government may condemn the building and assume ownership rights
Risky Structures

• Post demolition get ownership of land according to sq. footage of ownership of previous building
• New buildings must comply with planning regulations
Risky Areas

- The government announces risky areas through the urban Planning and Environment Commission
- Risky areas are included in the comprehensive plan

New high rise blocks in Bursa
Risky Areas

- Every person in an area marked as risky must demolish their structures
- If there is a risky area, the zoning may be changed to a higher density so that everyone can profit
- New buildings are constructed under the auspices of TOKI: the prime minister’s housing office

Central Kaledibi risk areas – all buildings within the zone are demolished
Risky Areas - TOKI

- Gives contracts to private contractors – private contractors then make the money and pay back in compliance with comprehensive plans, BUT because of the shortened timelines frequently regulatory steps are skipped
  - Led to allegations of corruption – Dec 17th investigation
  - TOKI operates in all major cities
TOKI Projects
Risky Areas – Public Perception

- The projects are popular, people are eager to buy new homes
- The best ones are now bought by Arab investors
  - Also many are occupied by Syrian refugees
- Previous inhabitants are consulted about what the new structure will be, but previous residents are guaranteed a unit
  - Must have previous ownership rights in land
    - Illegal immigrants are typically granted amnesty every 5 years and get property rights

Environment Minister Erdogan Bayraktar
Corruption/Unpopularity
Gezi Park
In the heart of the city, TOKI is tearing down all of the old trees and green space to build a shopping center. Has led to demonstrations and protests. Representative of perception that government demolishes and develops without regard for citizen preference.

Counter: requirement that the government must poll citizens before implementing changes to the comprehensive plan.

These surveys are very invasive.

There is an administrative fee for not complying.
Corruption/Unpopularity - Surveys

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  • Counter: requirement that the government must poll citizens before implementing changes to the comprehensive plan
    • These surveys are very invasive
    • There is an administrative fee for not complying
Oneryıldız v. Turkey

- In the European Court of Human Rights
- City dump, illegal housing
- 39 people living in slum dwellings were killed by a methane explosion
- The question becomes an issue of human rights
  - The right to life: there is a negative obligation of the government to not kill individuals
  - The positive obligation of the right to life: If there is a risk to human life (with concrete evidence) then it is a function of the police power to react and prevent death
- Court ruled against Turkey: 30 November 2004
- This is the basis of the law applying police powers in removing citizens living in risk areas
Dwight Merriam
A Modest Proposal...
Designate, notice, limit investment, and prepare to acquire...

To stop senseless rebuilding
Step One
Overlay Map of High Hazard Areas

Newport, Oregon

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Potential Tsunami Inundation Areas

This map is intended for emergency planning purposes only.
Colorado Red Zone

Interface Areas of High Wildfire Risk in Colorado

Red Zone Population:
- 748,350 (1990 Census)
- 979,851 (2000 Census)

Homes in Red Zone:
- 370,000 (1990 Census)
- 474,000 (2000 Census)

Red Zone Acres:
- 6,300,000 (2000)

Map Created September 2004
Colorado State Forest Service
Step Two
Place Notice on the Land Records
(d) A residential or commercial building may be repaired, rebuilt or replaced after being damaged or destroyed by a natural disaster or other act of God to eliminate or reduce nonconforming features to the extent possible, without the need to obtain a variance as provided in Code of Virginia, § 15.2-2310, as amended. If such building is damaged greater than 50 percent and cannot be repaired, rebuilt or replaced except to restore it to its original nonconforming condition, the owner shall have the right to do so.
Step Four
Limit Investment
Step Five
Create a Reserve Fund

- Special tax district
- Conveyance tax
- Ad valorem tax surcharge
Step Six
Buy after Destruction
Questions and Answers