

Session No. 3

Course Title: Breaking the Disaster Cycle: Future Directions in Natural Hazard Mitigation

Session Title: Implementing the Disaster Mitigation Act of 2000 at the Federal Level; Sustainability and Resilient Communities

Author: David R. Godschalk, University of North Carolina, Chapel Hill

Time: 150 minutes + 15 minute break

Objectives:

- 3.1 Summarize the major changes made by the Disaster Mitigation Act of 2000 to the Stafford Act
 - 3.2 Understand the actions being taken by FEMA to implement the new disaster act.
 - 3.3 Discuss the DMA's potential impacts on mitigation capacity and commitment
 - 3.4 Assess the DMA's potential impacts on the operations of the intergovernmental model of hazard mitigation.
 - 3.5 Discuss the concepts of sustainability and the resilient community.
 - 3.6 Examine the ideal of sustainable development to balance economic, environmental, and social objectives and outcomes
 - 3.7 Examine the need for physical, social, and economic resiliency
 - 3.8 Understand the relationships among the goals of hazard mitigation, resilient communities, and sustainable development.
 - 3.9 Discuss FEMA's approach to linking mitigation with sustainable development through land use planning, housing, and infrastructure.
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Scope:

The first part of the session is a lecture on the assumptions and actions underlying the implementation of the Disaster Mitigation Act of 2000 at the federal level. The Act's provisions and FEMA's implementation rule are summarized. Their potential impacts on state and local mitigation capacity and commitment are discussed. The concepts of sustainability and the resilient community are described and explored.

The second part of the session engages the students in a discussion of the application of sustainability and resiliency goals and objectives during implementation of the Disaster Mitigation Act of 2000. Student teams make recommendations to FEMA to ensure that their implementing procedures do not overlook the need for state and local plans and

actions to include provisions to deal with social and organizational vulnerability, as well as physical and environmental vulnerability.

Reading:

Instructor and student reading:

FEMA. 2000. *Planning for a Sustainable Future: The Link Between Hazard Mitigation and Livability*. Publication No. 364.

FEMA. 2000. *Rebuilding for a More Sustainable Future: An Operational Framework*. Publication No. 365.

Godschalk, David R. 2003. "Urban Hazard Mitigation: Creating Resilient Cities." *Natural Hazards Review* 4(3).

City of Tulsa. 2004. *Multi-Hazard Mitigation Plan*. Executive Summary. Tulsa, OK: Public Works Department.
([Http://www.cityoftulsa.org/Public+Works/hazards/summary.htm](http://www.cityoftulsa.org/Public+Works/hazards/summary.htm))

Chakos, A., P. Schulz, and T. Tobin. 2002. "Making It Work in Berkeley: Investing in Community Sustainability." *Natural Hazards Review* 3(2), 55-67.

Mileti, Dennis S. 1999. Ch. 2, "Scenarios of Sustainable Hazards Mitigation," in *Disasters by Design: A Reassessment of Natural Hazards in the United States*. Pp. 41-64. Washington, D.C.: Joseph Henry Press.

Additional instructor reading:

FEMA. N.d. *Project Impact Guidebook*. Washington, D.C.: U.S. Government Printing Office.

Mileti, Dennis S. 1999. Ch. 1, "A Sustainability Framework for Natural and Technological Hazards," in *Disasters by Design: A Reassessment of Natural Hazards in the United States*. Pp. 17-39. Washington, D.C.: Joseph Henry Press.

Handouts:

FEMA Consulting Exercise Instructions

Overheads:

- 3.1 Hazard Mitigation Planning and HMGP Rule
- 3.2 Mitigation Capacity and Commitment Measures
- 3.3 Impacts on Mitigation Capacity and Commitment

- 3.4 Sustainable Development
 - 3.5 Resilient Communities
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General Requirements:

The instructor presents a lecture during the first part of the session. In the second part, the instructor engages the class in a discussion of the implications of planning for community sustainability and resiliency, in terms of land use, housing, and infrastructure. The discussion is structured around suggestions by student consultant teams to FEMA as to how to implement the DMA, so as to enhance sustainability and resiliency.

Remarks:

During the previous class, students are formed into small (two to three person) teams whose assignment is to suggest to FEMA how to use the potential of mitigation to achieve community sustainability and resiliency during the implementation of the DMA. They are asked to review the new FEMA policies and regulations and think about how they are likely to affect practice in places such as Tulsa and Berkeley, that are described in the reading.

Their specific charge is:

As a consultant to FEMA, you have been asked to prepare a report on creating disaster-resilient communities. You know that the previous approach, Project Impact, is being replaced. How would you recommend that they add provisions to their implementing regulations for the DMA in order to ensure that the social and organizational vulnerability of communities are addressed, as well as their physical vulnerability?

3.1 Summarize the major changes made by the Disaster Mitigation Act of 2000 to the Stafford Act

As noted in the previous lecture, the primary provisions of the DMA, which amends the 1988 Stafford Act, are to:

- *Establish a predisaster hazard mitigation program.* "The President may establish a program to provide technical and financial assistance to States and local governments to assist in the implementation of predisaster hazard mitigation measures that are cost-effective and are designed to reduce injuries, loss of life, and damage and destruction of property, including damage to critical services and facilities under the jurisdiction of the States or local governments." Section 203(b).
- *Provide for incentive funding for predisaster mitigation.* "If the President determines that a State or local government has identified natural disaster hazards in areas under its jurisdiction and has demonstrated the ability to form effective public-private natural hazard mitigation partnerships, the President, using amounts in the National Predisaster Mitigation Fund ...may provide technical and financial assistance to the

State or local government..." Section 203(c). Up to 7 percent of the available HMGP funds may be used to develop plans. Federal assistance may contribute up to 75% of the total cost of mitigation activities.

- *Require state and local mitigation plans.* "As a condition of receipt of an increased Federal Share of hazard mitigation measures..., a State, local, or tribal government shall develop and submit for approval to the President a mitigation plan that outlines processes for identifying the natural hazards, risks, and vulnerabilities of the area under the jurisdiction of the government." Section 322(a) If, at the time of the declaration of a major disaster, a State has in effect an approved enhanced mitigation plan..., the President may increase [the Federal contribution] to 20 percent....[from the 15 percent of total eligible Federal assistance previously allowed].

3.2 Understand the actions being taken by FEMA to implement the new disaster act

To carry out the DMA, FEMA issued a new rule, *Hazard Mitigation Planning and Hazard Mitigation Grant Program* (44 CFR Parts 201 and 206) that strengthens hazard mitigation planning by (*Figure 3.1. Hazard Mitigation Planning and HMGP Rule*):

- Continuing the requirement for a *Standard State Mitigation Plan* as a condition of disaster assistance. Required plan content includes a description of the planning process, risk assessments, a mitigation strategy, coordination of local mitigation planning, a plan maintenance process, a plan adoption process, and assurances that the state will comply with applicable Federal laws and regulations.
- Creating a new type of plan--the *Enhanced State Mitigation Plan*--that provides for states to increase their percentage of HMGP funds (from 15 to 20 percent of total estimated Federal assistance) if they have an approved Enhanced Plan in effect prior to the time of the disaster declaration. Required plan content includes the same elements as a Standard Plan, as well documentation that: the plan is integrated with other state and regional plans, the state is capable of implementing the plan, the state effectively uses existing mitigation programs, the state is committed to a comprehensive mitigation program.
- Delegating responsibility for administering and managing the Hazard Mitigation Grant Program and approving local mitigation plans to *Managing States* that have been approved by FEMA.
- Establishing a new *requirement for local mitigation plans*. Required content includes: documentation of the planning process, a risk assessment, a mitigation strategy, a plan maintenance process, documentation of plan adoption.

- Authorizing up to 7 percent of the HMGP funds available to a state to be used for *development of state, tribal, and local mitigation plans*.

3.3 Discuss the DMA's potential impacts on mitigation capacity and commitment

The Achilles heel (weakest point) of past hazard mitigation has been the *lack of state and local mitigation capacity and commitment*. State and local governments have been reluctant to provide adequate mitigation staff resources on a continuing basis, preferring to hire temporary staff with federal funds following a disaster. This lack of capacity has weakened mitigation planning and implementation, which should take place *prior* to a disaster in order to be most effective. Lack of capacity has stemmed from a lack of commitment to ongoing hazard mitigation by state and local decision-makers, who fail to see the need for, and assign priority funding to, predisaster mitigation (*Figure 3.2. Mitigation Capacity and Commitment Measures*).

The DMA and implementing rules could have a substantial positive impact on increasing state and local mitigation capacity and commitment (*Figure 3.3. Impacts on Mitigation Capacity and Commitment*). Their incentives or "carrots" include increased funding for states with approved Enhanced Mitigation plans, increased independence for states that build their capacity so as to become Managing States, and increased funding for mitigation development. Their disincentives or "sticks" include required predisaster state and local mitigation plans to be eligible for disaster funding, and more detailed plan content requirements. The rules specifically require demonstration of local government hazard mitigation capacity and commitment.

Taken together the carrots and sticks should motivate many state and local governments to do serious predisaster hazard mitigation planning and implementation. However, it remains to be seen how many state and local governments will be motivated to change their minimal mitigation capacity and commitment. States with larger populations and with more frequent disasters should be expected to do the most to follow the new Act and rules. Some smaller states with less disaster history may still do the minimum necessary to comply (e.g., Standard Plans).

A comprehensive analysis and planning process is time consuming and requires substantial staff resources. However, by encouraging widespread citizen participation, and perhaps engaging a knowledgeable consultant, communities can prepare workable mitigation plans.

3.4 Assess the DMA's potential impacts on the operations of the intergovernmental model of hazard mitigation

The intergovernmental model of hazard mitigation, discussed in a previous class, depends upon strong and effective linkages among FEMA headquarters, FEMA regional offices, states, and local governments. The DMA provides a number of avenues for strengthening these linkages (*Figure 3.4. DMA Impacts on Intergovernmental Model of Hazard Mitigation*).

- Opportunities to achieve approved Enhanced State Mitigation Plans and Managing State designations should increase communication and coordination among states and FEMA regional offices. As state hazard mitigation officers seek to prepare, and achieve approval of, their Enhanced Plans and their Managing State designations, they will necessarily have to work closely with FEMA regional staffs, who will be interpreting and applying the new rules.
- Requirements for state and local predisaster plans should build mitigation capacity linked to risk assessments and vulnerability analyses. Mitigation projects thus should have a stronger analytical basis, rather than simply responding to the latest disaster. In this way, national disaster policy should have a clearer connection to state and local mitigation strategies and activities.
- Access to federal funding for predisaster mitigation planning should encourage state and local governments to develop and implement stronger hazard mitigation plans. Preparing high quality plans takes considerable staff time and resources, as well as considerable participation and coordination efforts. Funding availability should go a long way toward increasing the quality of state and local mitigation plans.

3.5 Discuss the concepts of sustainability and the resilient community.

Sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs. This was the definition provided by the World Commission on Environment and Development, the Brundtland Commission, in 1987 (named after the Commission chair). Sustainable development involves balancing social, environmental, and economic needs (*Figure 3.4. Sustainable Development*).

FEMA has issued a series of publications that demonstrate the relationships between hazard mitigation and community sustainability (FEMA. 2000. *Planning for a Sustainable Future: The Link Between Hazard Mitigation and Livability*. Publication No. 364. FEMA 2000. *Rebuilding for a More Sustainable Future: An Operational Framework*. Publication No. 365). These publications note that sustainable communities make more efficient use of their land, including preventing development from encroaching upon flood plains, active fault zones, and other hazard areas. They maintain social viability by balancing the competing needs of their citizens. They maintain economic viability by keeping businesses out of high-risk areas, or disaster proofing them if there is no practical way to relocate them. They maintain environmental sustainability by preserving natural systems and limiting environmental degradation.

Resilience to disasters is an essential characteristic of sustainable communities (Godschalk 2003). Resilient communities are capable of withstanding severe shock without permanent harm. While they might bend from hazard forces, they would not break. They would be able to withstand major impacts without sustaining debilitating physical, social, or economic damage (*Figure 3.5. Resilient Communities*). Resiliency has

also been used to describe ecological systems, in term of their ability to recover from impacts, such as droughts, changes in water supply, etc.

Dennis Mileti (1999, p. 32-33) defines resiliency also in terms of the self sufficiency of the community:

"Local resiliency with respect to disasters means that a locale is able to withstand an extreme natural event without suffering devastating losses, damage, diminished productivity, or quality of life and without a large amount of assistance from outside the community."

A resilient community is a sustainable network of physical systems and human communities. Physical systems are the constructed and natural environment components of the community. Human communities are the social and institutional components of the community. Together, they comprise the body and brains of the community.

3.6 Examine the ideal of sustainable development to balance economic, environmental, and social objectives and outcomes

The ideal of sustainable development is to balance long-range economic, environmental, and social objectives and outcomes. While no community is liable to become fully sustainable, due to the dynamic and uncertain nature of growth and development, the ideal of sustainable development is a useful model. Communities can use this goal to monitor their current development, to assess development proposals, and to orient their plans, including their mitigation plans.

The value of a sustainable development goal is that it bridges the narrow bounds of single function plans, forcing decision-makers to take a comprehensive perspective. For example, rather than considering only economic development objectives, a community aiming for sustainable development will look also at environmental and social impacts. Rather than considering only the immediate benefits of a disaster recovery plan, a community aiming for sustainable development will look also at the impacts of recovery proposals on the environment, the economy, and the social life of the community.

3.7 Examine the need for physical, social, and economic resiliency

Resiliency also is a long-range goal, but its pursuit is more grounded in day-to-day decisions and actions. Physical resiliency is the most obvious aspect. Disaster impacts destroy physical objects, such as buildings, bridges, and infrastructure. If these structures were designed to resist disaster forces, or to be flexible rather than rigid, more of them would survive and continue to function. Physical resiliency can be increased through construction and development standards and by system design principles, such as redundancy, that allow a system, such as a transit network or a communications network, to function even if parts of the system sustain damage.

Social resiliency is the "soft," but nevertheless extremely important, side of the resiliency equation. It seeks to build the capacity of the neighborhoods, organizations, businesses,

and institutions within the community to anticipate, mitigate, respond to, and recover from disasters. Effective threat reduction demands collective action by informed and capable people and social systems. Social resiliency must account for the fact that often the poor and minorities are among the most vulnerable to disasters. It must be proactive in informing and collaborating with those who face the greatest environmental risks and have the least access to coping resources.

Economic resiliency is critical to the survival of communities struck by disasters. Interruption of business operations following a disaster can cripple a community and its population. While federal loan programs are available to help businesses recover, their recovery would be facilitated by predisaster mitigation actions. Operating systems that account for, and provide coping strategies for, extreme events can be designed. Programs to assist workers during periods of business closure can be set up.

3.8 Understand the relationships among the goals of hazard mitigation, resilient communities, and sustainable development

There are many similarities among the goals of hazard mitigation, resilient communities, and sustainable development. For example, at the neighborhood level, the following goals might be established.

- Hazard mitigation: relocate the residents living within the 100-year floodplain to safe locations.
- Resilient communities: educate the residents living within the 100-year floodplain to the dangers of floods.
- Sustainable development: maintain the natural riverfront environment as a wildlife corridor.

Achievement of these three goals could be the focus of a neighborhood charrette or workshop, in which residents, designers, and hazard experts developed a small area plan for the neighborhood. During the charrette, residents could get information about the dangers of living within the floodplain and learn about government relocation programs. They could explore the possibility of relocating their residences from the hazard area to safe areas within the community. Finally, they could learn how conservation of the natural areas within the floodplain and along the riverfront could preserve wildlife habitat and contribute to open space.

3.9 Discuss FEMA's approach to linking mitigation with sustainable development through land use planning, housing, and infrastructure

During the previous class, students are formed into small (two to three person) teams whose assignment is to suggest to FEMA how to use the potential of mitigation to achieve community sustainability and resiliency during the implementation of the DMA. They are asked to review the new FEMA policies and regulations and think about how they are likely to affect practice in places such as Tulsa and Berkeley, that are described in the reading.

Their specific charge is:

As a consultant to FEMA, you have been asked to prepare a report on creating disaster-resilient communities. You know that the previous approach, Project Impact, is being replaced. Yet, the success of communities such as Tulsa and Berkeley demonstrates the need for ongoing social and institutional support for mitigation. How would you recommend that FEMA add provisions to the implementing regulations for the DMA in order to ensure that the social and organizational vulnerability of communities are addressed, as well as their physical vulnerability?

The instructor should pose the following questions at opportune times during the team presentations and discussions.

1. Is there a way to incorporate the concepts of sustainability and resiliency into the preparation of an Enhanced Mitigation Plan?
2. How do the new hazard mitigation rules account for the need to enhance social resiliency? Can they recognized the need for a local mitigation champion, for example?
3. How do the new hazard mitigation rules account for the need to enhance environmental resiliency?
4. How do the new hazard mitigation rules account for the need to enhance economic resiliency?
5. What standards can you recommend to FEMA to use in assessing state and local mitigation plans to see if they will achieve sustainability and resiliency?
6. How can FEMA build capacity and commitment for planning and mitigation that addresses sustainability and resiliency?

FEMA Consulting Exercise Instructions Handout

Situation

You have been assigned by your instructor to small consulting teams. Your assignment is to review the provisions of the Disaster Mitigation Act of 2000 and its implementing rule in light of achieving sustainable and resilient communities, and to prepare recommendations to FEMA.

As consultants to FEMA, your teams have been asked to prepare and present reports on creating disaster-resilient communities under the Disaster Mitigation Act of 2000. You know that the previous approach, Project Impact, is being replaced. Yet, the success of communities such as Tulsa and Berkeley demonstrates the need for ongoing social and institutional support for mitigation. They particularly illustrate the need for mitigation champions in local government, both elected and appointed.

How would you recommend that FEMA add provisions to the implementing regulations for the DMA in order to ensure that the social and organizational vulnerability of communities are addressed, as well as their physical vulnerability?

Figure 3.1. Hazard Mitigation Planning and HMGP Rule

Standard State Mitigation Plan (15% HMGP)

- planning process,
- risk assessment
- mitigation strategy,
- local mitigation planning coordination
- plan maintenance, adoption, compliance

Enhanced State Mitigation Plan (20% HMGP)

- Standard Plan elements,
- Integration with other state and regional plans
- Implementation capability
- Use of existing mitigation programs
- Commitment to comprehensive mitigation program

Managing State designation

Required local mitigation plan

- Planning process
- Risk assessment
- Mitigation strategy
- Plan maintenance
- Plan adoption

HMGP funds for predisaster mitigation planning

Figure 3.2. Mitigation Capacity and Commitment Measures

Mitigation capacity: ability to carry out effective hazard mitigation

- Number of full-time mitigation staff members
- Training of mitigation personnel
- Resources devoted to mitigation

Mitigation commitment: willingness to support risk reduction goals

- State & local elected officials support for mitigation
- Staff support for mitigation

Figure 3.3. Impacts on Mitigation Capacity and Commitment

Carrots

- Increased funding for Enhanced Mitigation Plans
- Increased independence for Managing States
- Increased funding for predisaster mitigation planning

Sticks

- Required predisaster state and local mitigation plans
- Required detailed plan content
- Required demonstration of capacity and commitment

Figure 3.4. DMA Impacts on Intergovernmental Model of Hazard Mitigation

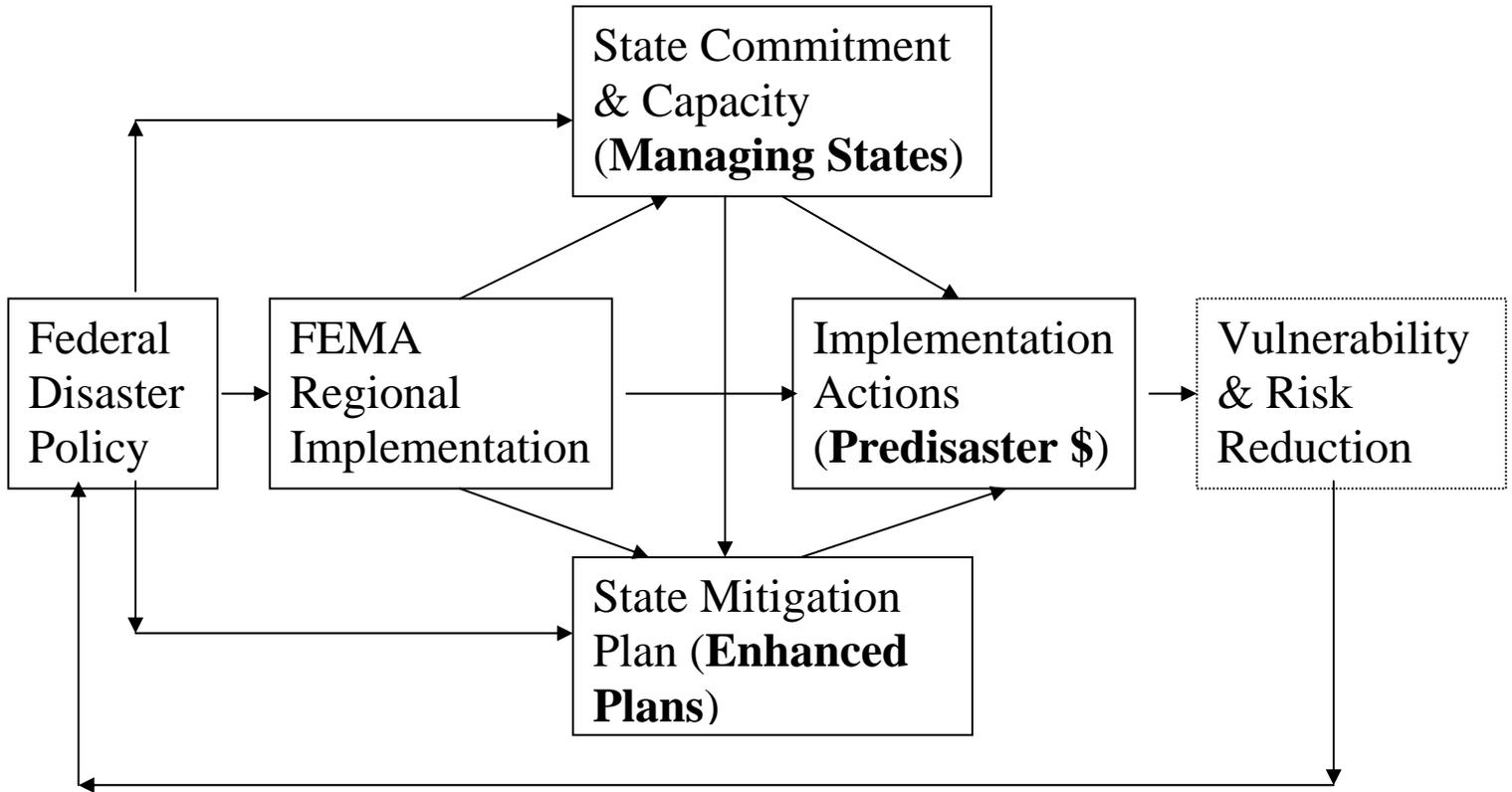


Figure 3.4. Sustainable Development

Meets present needs without compromising the ability of future generations to meet their needs (Brundtland Commission 1987)

Balances social, environmental, and economic requirements:

- Responds equitably to competing needs of citizens.
- Preserves natural systems and limits environmental degradation.
- Ensures business viability

Figure 3.5 Resilient Communities

Local resiliency with respect to disasters means that a locale is able to withstand an extreme natural event without suffering devastating losses, damage, diminished productivity, or quality of life and without a large amount of assistance from outside the community. Mileti (1999)

Sustainable network of:

- *Physical systems*--constructed and natural environment components of community (body)
- *Human communities*--social and institutional components of community (brain)