

Session No. 21

Course Title: Coastal Hazards Management

Session Name: Competing Values in Coastal Hazards Management

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Time: 50 minutes

Objectives:

- 21.1 List some of the competing values that come into play in coastal hazards management
 - 21.2 Discuss the ethical quandary that can arise when coastal hazard managers are faced with balancing the values of Public Good v. Private Interest.
 - 21.3 What are some differing views of acceptable risk in coastal hazards management?
 - 21.4 Discuss the issue of responsibility for safety along the coast
 - 21.5 Consider the Moral Community: what or who do we take into account in ethical judgments?
 - 21.6 Discuss the issues of Fairness and Equity in coastal hazards management
 - 21.7 What are some guidelines for ethical coastal management?
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Scope:

While the previous session lays out a broad ethical framework, and describes some leading ethical perspectives relevant to coastal hazards management, this session presents a more extended discussion of the full range of societal and personal values that typically come into play in coastal hazards management. Sometimes this rich mix of values entails serious and extensive conflicts between values, at other times complementary between values. As well as identifying and thoroughly discussing these values, this session will present ideas for how competing and conflicting values can be overcome, and how a range of values can be integrated and acknowledged in coastal hazards management.

Readings:*Instructor and Student Readings:*

Godschalk, David R., et al. 1999. *Natural Hazard Mitigation: Recasting Disaster Policy and Planning*. Washington, D.C.: Island Press, pp. 479-524: "Ethical Guidelines for Hazard Mitigation."

Beatley, Timothy, et al. 2002. *An Introduction to Coastal Zone Management*, 2nd Edition. Washington, DC: Island Press, pp. 63-89.

Additional Instructor Readings:

Beatley, Timothy. 1989. "Towards a Moral Philosophy of Natural Disaster Mitigation." *International Journal of Mass Emergencies and Disasters* 7(1): 5-32.

Beatley, Timothy. 1994. *Ethical Land Use: Principles for Policy and Planning*. Johns Hopkins University Press.

PowerPoint Slides:

- PowerPoint 21.1 Competing Values in Coastal Hazards Management**
- PowerPoint 21.2 Public Goals for Coastal Hazards Management**
- PowerPoint 21.3 Individual Values That May Conflict with Public Values in Coastal Hazards Management**
- PowerPoint 21.4 Public Choices About Risk**
- PowerPoint 21.5 Individual Values of Risk**
- PowerPoint 21.6 Risk Awareness**
- PowerPoint 21.7 Estimating Loss in Assessment of Risk**
- PowerPoint 21.8 Intangible Losses**
- PowerPoint 21.9 Who Bears Responsibility for Safety Along the Coast?**

PowerPoint 21.10 Who is Included in Our Moral Community?

PowerPoint 21.11 Fairness and Equity in Coastal Hazards Management

General Requirements

As with the previous sessions, the best pedagogic strategy is a combination of lecture and discussion, with an abundant use of coastal hazards examples to illustrate the ethical and value dilemmas. The lecture is supported by PowerPoint slides. Students should understand that there are few “correct” answers; rather, there is a rich set of ethical factors and considerations that should be examined and discussed. Students should feel comfortable expressing their own personal viewpoints while attempting to understand the perspectives and values of others in the class. Students should be called upon to apply the ethical framework developed in the previous session, but to expand on it to address some of the inherent (and difficult) conflicts that inevitably emerge in making and implementing coastal hazards policy.

Supplemental Considerations:

This session does not include lecture or discussion on the “Takings Clause” of the 5th Amendment to the U.S. Constitution. However, some of the issues raised during Objective 21.2, which involves discussion of the balancing between public good and private interest, could easily include material on the limits of the government’s power to regulate and control private property. This topic is too complex to be raised here, but it may be broached during discussion if the students are familiar with the Constitutional ramifications of regulating private property.

Objective 21.1 List some of the competing values that come into play in coastal hazards management

Requirements:

The content should be presented as a lecture, supported by PowerPoint slide. Class discussion is to be encouraged.

The following PowerPoint slide will be used during this Objective:

PowerPoint 21.1 Competing Values in Coastal Hazards Management

Remarks:

- As we learned in the previous session, there is a **full range of values** that are typically expressed and come into play in coastal hazards management.
- We will explore a few of these today in our discussion of competing values in coastal hazards management:

[PowerPoint 21.1 Competing Values in Coastal Hazards Management]

- Public good v. private interest
 - Differing views of what constitutes acceptable risk
 - Who is responsible for safety along the coast
 - Who is included in the “moral community?”
 - Issues of fairness and equity in coastal hazards management
- These issues define the parameters of our discussion today on competing values in coastal hazards management. **Some values** are likely to **conflict with effective hazards management**, while **others** may **complement** efforts by coastal managers.
 - During the next few objectives we will also bring up **examples** that will illustrate clashing and conflicting values in the coastal hazards context. As we discuss these issues, you should be identifying tools, techniques and strategies for reconciling, acknowledging, and effectively integrating different values in coastal hazards management.

Objective 21.2 Discuss the ethical quandary that can arise when coastal hazard managers are faced with balancing the values of Public Good v. Private Interest.

Requirements:

The content should be presented as a lecture, supported by PowerPoint slides. Class discussion is to be encouraged.

The following PowerPoint slides will be used during this Objective:

PowerPoint 21.2 Public Goals for Coastal Hazards Management
PowerPoint 21.3 Individual Values That May Conflict with Public Values in Coastal Hazards Management

Remarks:

- Many of the most difficult ethical dilemmas that arise in coastal hazards management involve **conflicts** between values in support of a **larger public good** and **individual self-interest**.
- **Examples of the larger public good** that are often the goal of coastal hazards management include:

[PowerPoint 21.2 Public Goals for Coastal Hazards Management]

- safety of the public at large
 - long-term sustainability
 - the presentation of public leaders
 - protection of public investment
 - economic stability/protection of the tax base
 - other important public goals
- At times, these may conflict with values of **individual self-interest**.
 - **Examples of individual values** that may conflict with public values of coastal hazards management and mitigation include:

[PowerPoint 21.3 Individual Values That May Conflict with Public Values in Coastal Hazards Management]

- unfettered use of private property
 - limits on government interference
 - an aversion to “paternalistic” government action
 - the right to make economic use of private property
 - the right to protect and safeguard private property from coastal hazards
- A **policy dilemma** can arise when determining the appropriate **balance** between government **police power regulations** of coastal lands and the **sanctity of private property**.
 - Many states and local coastal communities have enacted **land use regulations** intended to reduce the risk to people and property from coastal hazards.
 - o *Examples* of such regulations include:
 - Coastal setbacks (prohibiting construction seaward of certain lines)
 - Restrictions on filling wetlands
 - Prohibitions on post-storm reconstruction

- Prohibitions on shore-hardening erosion-control devices (e.g., groins, jetties, revetments)
 - These regulations are meant to **prevent harm** to the public from coastal erosion, storm surge, flooding, inlet formation, etc. as well as to protect public goods, such as shoreline access, recreational beaches, etc.
 - Some landowners argue that these regulations **violate their private property rights** by curtailing their use of coastal property.
 - When regulation restricts use of private land, it may be deemed **unconstitutional**.
- On the other hand, can it be argued that property **owners have an ethical obligation** regarding their land?
 - Is there an **affirmative duty** to be a good **steward of the land**? Is there a duty owed to the larger community?
 - *For example, altering the natural environment* in coastal areas can have profound ramifications for hazards management. Many types of natural resources perform a mitigation function.
 - Activities that are commonly undertaken during **development** of private property that may **increase the vulnerability** of a neighboring parcels include:
 - covering land with large amounts of impervious surface
 - draining or filling wetlands
 - removing natural vegetation
 - interfering with natural sand migration
 - destroying dune systems
- *For discussion:*
 - Consider state laws that prohibit shore-hardening erosion control:
 - *For example: North Carolina prohibits permanent stabilization* of the ocean shoreline, because structures such as bulkheads, seawalls, jetties, revetments and groins interrupt natural sand migration patterns and can increase erosion at nearby properties. Sandbags are allowed only on a temporary basis to protect imminently threatened oceanfront structures.

- The NC Coastal Resources Commission, the policy-making body for North Carolina's coastal management program, states that **comprehensive shoreline management** is preferred over small-scale projects for oceanfront protection. Erosion management measures are more successful when coordinated over a large stretch of shoreline rather than at scattered, individual sites.
 - On the other hand, **individual property owners** whose private homes and investment properties are threatened by coastal hazards may consider it their right to employ measures such as seawalls or other erosions control devices in **defense of their property**.
 - How to reconcile and balance these often-**conflicting public-private values** is a significant and difficult task.
- While setting the legal arguments aside, **discuss and debate** the ethical, political and philosophical issues presented here.

Objective 21.3 What are some differing views of acceptable risk in coastal hazards management?

Requirements:

The content should be presented as a lecture, supported by PowerPoint slides. Class discussion is to be encouraged.

The following PowerPoint slides will be used during this Objective:

PowerPoint 21.4 Public Choices About Risk

PowerPoint 21.5 Individual Values of Risk

PowerPoint 21.6 Risk Awareness

PowerPoint 21.7 Estimating Loss in Assessment of Risk

PowerPoint 21.8 Intangible Losses

Remarks:

Levels of Risk

- Another major category of **value conflict** involves **judgments** about what amounts to **acceptable or unacceptable levels of risk** at the coast.

- This involves conflict between **individual and collective judgments** about acceptable risk.
 - Such judgments are faced at an individual level all the time, but this represents a significant ethical challenge at the public or collective level as well.

Acceptable Levels of Risk in the Public Arena

- All coastal **hazard reduction** or mitigation strategies undertaken by the government represent **choices about acceptable risk**, whether explicit or implicit.

[PowerPoint 21.4 Public Choices About Risk]

- *For example*, the **policy decision** to adopt the 30-year erosion line versus the 60-year line as a standard for imposing development **setbacks along the coast**, or the decision to adopt no setback rule at all, is clearly a decision about **risk acceptability**.
- *For example*, for flooding, national policy (under the NFIP) is to accept the **100-year flood** standard for regulation (i.e., a 1% probability per year); life and property need to be protected against any flood up to this size. The implication is that larger floods are too rare and costly to mitigate through land use means. (Burby, 1998).
- It is clear that **the choice of the appropriate recurrence interval** that serves as the basis of hazard management crosses the line from the purely technical to issues of *policy* as it directly relates to the question of acceptable risk. (see Burby, 1998).
- This choice of what is an acceptable level of risk represents a **value judgment** that can be **difficult to deal with in the political arena**.
 - As a general rule, **local officials** (particularly elected officials) are oriented towards **short-term issues and decisions**.
 - The wider **ethical ramifications** of risk acceptance can be **difficult** to grapple with in this context.

Individual Values Regarding Risk

- Individuals may have **differing values** regarding acceptable levels of risk.
- **Individual values** that may conflict with coastal hazards management and mitigation include:

[PowerPoint 21.5 Individual Values of Risk]

- strong individualism, personal independence
- personal freedom to choose a particular living environment (i.e. risky) and to pursue a particular coastal lifestyle
- personal judgments and perception about risk that differ substantially from the judgments about risk made by public agencies
- fears about paternalistic government risk reduction
- preference for and belief in the market system as the correct determinant of acceptable risk (e.g. if developers can profitably build and sell homes in a high-risk coastal location then it must be okay, right?)

Issues of Risk Awareness

- Making choices about acceptable risk, that is, what magnitude and likelihood of losses are deserving of public attention, raises a further complicating issue: the varying **levels of awareness** of individuals and the public about the hazard risks they face.

[PowerPoint 21.6 Risk Awareness]

- **Research** has shown that **people are typically unaware of all the risks** and choices they face. This lack of awareness often manifests itself in different ways.
 - o People tend to:
 - Plan only for the immediate future
 - ignore or discount emergency warnings
 - overestimate their ability to cope when disaster strikes
 - fail to prepare for hazard events
 - rely heavily on emergency relief.
- Hazard researchers now also recognize that **demographic differences** play a large role in determining the risks people encounter, whether and how they prepare for disasters, and how they fare when disasters occur.
- The need for mitigation and response efforts that acknowledge the demographic differences among the nation's citizens will become even **more critical** as the US population becomes **more diverse**.
 - *For example, non-minorities* and households with higher socioeconomic status **fare better**, while **low-income** households are at **greater risk** mainly because they live in

lower-quality housing, and because disasters exacerbate poverty (Mileti, 1999).

- *Question:* **What are the moral implications** when individuals' perceptions of risk do not reflect reality? Is there a **duty to provide information** so that individuals can make an informed choice about the level of risk that is acceptable to them? Where does this duty lie?

What Does “Risk” Involve?

- When we debate the issue of what constitutes an acceptable or unacceptable level of risk, we need to know what “risk” is.
- Government management of hazard risk has been **criticized** for its **narrow focus on risk reduction**.
 - Risk reduction is typically defined as exclusively concerned with **mitigating property and income loss**.
- **Environmental and social concerns** of people living in and near hazardous areas have often been **left out** of the formula for calculating risk.
- The narrow focus on **property loss reduction benefits property owners** at the possible **expense of other community interests** who might benefit from dollars spent on other community needs rather than loss reduction. (Burby, 1998)
- This narrow focus is articulated in the method of risk assessment used by most state and local governments when engaging in hazard mitigation planning and policy formulation.
- **Loss estimation** is a large part of these risk assessments.

[PowerPoint 21.7 Estimating Loss in Assessment of Risk]

- *Loss* is often represented as the **monetary damage** to structures and contents, interruption of services, and displacement of residents and businesses. (FEMA, 2001).
- The use of money as a measure of loss is the essence of comprehensive risk assessment under many models.

[PowerPoint 21.8 Intangible Losses]

- It is important to note that there may be **other intangible losses** from a hazard disaster that occur in a community that are difficult to quantify, such as:
 - **historic value**
 - **cultural integrity**
 - **environmental quality**
 - **community character**
 - **sense of place**
 - *Discuss* the **ethical ramifications** of a **monetary definition of loss** to the exclusion of other considerations in the determination of acceptable levels of coastal hazards risk.
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Objective 21.4 Discuss the issue of responsibility for safety along the coast

Requirements:

The content should be presented as a lecture, supported by PowerPoint slide. Class discussion is to be encouraged.

The following PowerPoint slide will be used during this Objective:

PowerPoint 21.9 Who Bears Responsibility for Safety Along the Coast?

Remarks:

Who Bears Responsibility for Safety Along the Coast?

- Many different actors, professionals, and groups have a hand in making decisions about coastal hazards.
- While we often assume that primary responsibility for ensuring public safety along our coasts resides with government, and specifically state and local governments, there are different perspectives on this.
- A different view is that safety is a **shared responsibility**.
 - **Business owners, homeowners and visitors** at the coast can be said to have a certain responsibility for their own safety:
 - a responsibility to **monitor weather** and to be prepared to **evacuate** when necessary

- a responsibility to perform **structural mitigation** on their home (e.g., install hurricane shutters)
 - a responsibility to be prepared for known hazards (e.g., prepare a “**disaster care kit**” for the family)
 - a responsibility to **purchase flood insurance**
 - a responsibility to be **fully apprised of the riskiness** of a building site or home location before they purchase it.
 - Other responsibilities?
- o **Other actors and interests** may also share in the responsibility for safety at the coast:
- **banks** and lending institutions have responsibility to be cautious in loaning money to risky projects
 - **real estate professionals** have a responsibility to fully inform prospective buyers about possible risks
 - **landlords and building owners** are responsible for the safety of tenants and building occupants
 - **builders and developers** have a responsibility to adhere to minimum building codes and construction standards
 - landscapers, architects, engineers, planning consultants and **other professionals** have a responsibility to apply the building process and community development process in a manner that does not exacerbate the coastal hazard risk

[PowerPoint 21.9 Who Bears Responsibility for Safety Along the Coast?]

- *For Discussion:* Expand on the ways that these different parties should (or should not) be responsible for safety at the coast. To what degree should parties be culpable for lapses in safety? Where do the risks and liabilities lie?
 - o Some possible answers:
 - *Housing consumers:* should we rely on homebuyers to educate themselves about hazard risks?
 - *Real estate professionals:* is there a duty to inform potential property buyers about known hazards in jurisdictions where there are no disclosure laws? Or is it “buyer beware”?
 - *Residents of coastal communities:* is there a civic duty to learn about coastal hazards and be proactive in reducing the risks?

- *City council/mayor/zoning or planning departments*: is the local government liable for promoting or allowing development to take place in hazard areas?
- *Lawmakers*: are state and local lawmakers responsible for enacting building codes and safety standards for coastal areas?
- *Local inspectors and building officials*: is there a duty to enforce the building code to the letter? To refuse rebuilding permits following a disaster?
- *Building owners and landlords*: are they responsible for constructing and/or retrofitting buildings to prevent injuries to employees, tenants, customers? Are the costs passed on, or absorbed by the owner?
- *Insurance companies*: do they have a responsibility to provide incentives for safety features and good design? To provide insurance to homeowners at *all* levels of risk exposure equally? Or to *refuse* coverage for risky behavior (i.e., building in high-hazard areas)?

Objective 21.5 Consider The Moral Community: What or Who Do We Take Into Account in Ethical Judgments?

Requirements:

The content should be presented as a lecture, supported by PowerPoint slide. Class discussion is to be encouraged.

The following PowerPoint slide will be used during this Objective:

PowerPoint 21.10 Who is Included in Our Moral Community?

Remarks:

- One of the most important categories of ethical questions has to do with **whom or what ought to be considered** in making ethical judgments about coastal hazards.
 - o Philosophers often describe this as the **defining of the moral community**—the group of people, places, things whose interests ought to be taken into account in judgments and policymaking.

- So much **contemporary policymaking** is based on a relatively **narrow conception of the moral community**—viewed usually as people (humans) currently living, with a clear, obvious and direct interest in a decision or outcome.
 - *For example*, in deliberating about whether it is permissible to develop in a **coastal wetland or floodplain**, a narrow notion of the moral community might consider just **effects on landowners and the current residents** of the locality in which these ecological lands are located.
 - **Ethics** is often, however, about **expanding the definition of the moral community**,
 - *For example*, taking into account the **other species of life** dependent upon the wetlands and coastal riparian areas.
 - Ought we to consider the interests and perspectives of **future generations**, or at least likely future residents of this place? Are there coastal resources of **extra-local or even national or international significance**?
- *For discussion*: In thinking about coastal hazards policy, **who/what is part of our moral community?** Are the following to be included?

[PowerPoint 21.10 Who is Included in Our Moral Community?]

- residents who will be living in the locality in 100 years?
 - developers and property owners only?
 - seasonal visitors and part time residents?
 - sea turtles and sand crabs?
 - coastal wetlands and dunes?
 - residents and public residing in the larger watershed/bioregion?
 - others???
- Those who argue on behalf of the notion of sustainability and **sustainable coastal communities** (see Beatley, Brower and Schwab, 2002), often do so at least in part through an **expanded sense of the moral community**—that people and other life that follow in time are entitled to certain things from us.

The Failure to Act Regionally

- Consider the problem that stems from the fact that **hazards** and the geophysical systems that engender them **do not respect political boundaries**.
 - *For example*, when only a portion of a **watershed** is managed, serious consequences can result, such as when the hazard mitigation efforts of one

jurisdiction lead to increased, not decreased, **losses for neighboring communities.** (Burby, 1998)

- This can happen when one community builds a groin or jetty that captures sand to stall beach erosion, to the detriment of neighboring communities who are deprived of sand that is normally carried by down-shore drift.

Objective 21. 6 Discuss the issue of fairness and equity in coastal hazards management

Requirements:

The content should be presented as a lecture, supported by PowerPoint slide. Class discussion is to be encouraged.

The following PowerPoint slide will be used during this Objective:

PowerPoint 21.11 Fairness and Equity in Coastal Hazards Management

Remarks:

- Another major category of **value conflict** involves **how fair and equitable coastal hazards policy** is, as well as the fairness and equity of policy **implementation.**

[PowerPoint 21.11 Fairness and Equity in Coastal Hazards Management]

Equal Treatment

- Ethical theory (and the law) suggests that **similarly-situated** individuals ought to be **treated similarly.**
 - *For instance,* should **damaged buildings** be **treated all the same** following a disaster? (e.g., following a hurricane, substantially damaged buildings do not receive a permit to rebuild. All buildings damaged less than 50% may rebuild. *Is this fair, equitable?*)
 - Although **consistent implementation** is one important value, there are also strong pressures to **relax standards** following a disaster. There is a natural desire to help people who have been devastated by a disaster

and to do everything possible to allow them to restore their lives to a state of normalcy. *Is this ethical, moral?*

- Should families that **never participated** in mitigation activities or purchased flood insurance be entitled to the benefits of a public acquisition of their property? It seems unfair, does it not, that these folks **reap the same reward** for doing nothing as those conscientious homeowners who heeded the call and strengthened their homes and purchased flood insurance well in advance of the event.
- But perhaps some **unfairness is a necessary evil** in exchange for **achieving some greater mitigation good**. Although it may seem unfair to extend buyout benefits to those who have taken no action to protect themselves, the reality is that without the buyout program, these people will rebuild in the floodplain, later costing the federal government much more. (Godschalk, et al, 1999).

Procedural Ethics

- Procedural ethics requires that the **process of coastal hazards management be fair**. This means that the **needs, interests, and opinions** of affected individuals and groups are **taken into account**.
- **Public involvement** and public input are critical in decisions regarding large-scale mitigation projects.
 - o Government agencies must also take care that the **unique characteristics** of individual communities are not discounted in efforts to bring mitigation programs to localities impacted by a natural disaster.
 - *For example*, the **Town of Princeville**, incorporated in 1885 by former slaves, illustrates the pride that many North Carolinians take in their communities. The high floodwaters brought by Hurricane Floyd in 1999 caused severe damage to a majority of the houses in Princeville. Despite the extent of the damage, homeowners in the town **chose not to participate in the buyout** offer made by the State to fund the acquisition of the damaged homes, which would have enabled the citizens to move to higher ground. Instead, the residents of Princeville, believing that their **sense of place** could not be replicated elsewhere, decided to strengthen the levee against the banks of the Tar River, and to keep the Town intact for future generations. The case of Princeville demonstrates the need for sensitivity that State agencies must sometimes use when implementing government programs.

Equitable Distribution of Mitigation Costs

- A related issue of **fairness** has to do with **how the costs of mitigation or management programs are distributed** and apportioned.
 - A **benefits standard**, one commonly endorsed in discussions of fairness in public finance, suggests that **those who directly and primarily benefit** from a hazard reduction program (e.g. oceanfront property owners benefiting from extensive and expensive beach renourishment) ought to **bear the lions share of the costs**.
 - Here perhaps the most **controversial** contemporary issue is the extent to which **federal taxpayers** ought to **bear (any) of the costs** associated with **hazardous coastal development** (e.g. NFIP, disaster assistance funding) and efforts to **make coastal property safer** (and thus private investments more valuable).

Objective 21.7 What are some Guidelines for Ethical Coastal Management? (Optional)

Requirements:

If time permits, the instructor should lead a discussion regarding some of the guidelines for ethical hazard mitigation that are listed in the *Reading* for this Session:

Godschalk, David R., et al. 1999. *Natural Hazard Mitigation: Recasting Disaster Policy and Planning*. Washington, D.C.: Island Press, pp. 516-523: "Guidelines for Ethical Mitigation."

The material presented in this Objective may be copied and distributed to students for use during the discussions.

Remarks:

Guidelines for Ethical Mitigation

1. Acknowledge and openly discuss the ethical choices involved in mitigation.
2. Identify and take into account the full array of moral duties and claims; consider the full range of moral issues.
3. Directly involve affected individuals and groups in mitigation decisions; promote an open and democratic process.

4. Give public needs priority over individual wants.
5. Be honest and direct with the public about risks; expect honesty and courage from elected officials in confronting the prospects of disaster.
6. Encourage individuals and groups to assume personal responsibility for safety and hazard reduction; acknowledge the special duty of government to ensure public safety.
7. Apply mitigation rules, regulations and standards fairly and consistently.
8. Treat similarly situated individuals similarly.
9. Obey and enforce the law.
10. Demand professional accountability; ensure that the safety of the public is placed above the profit motive and the selling of services.
11. Give protection of human life priority over protection of property.
12. Preserve and restore the natural environment.
13. Protect and preserve historic buildings and resources.
14. Develop mitigation alternatives that satisfy multiple values.
15. Minimize the negative side effects of mitigation programs on individuals and communities.
16. Avoid mitigation that places disproportionate burdens on the least advantaged in society; strive to improve the conditions of the least advantaged.
17. Ensure equal access to mitigation benefits
18. Consider the interests of future generations in making mitigation decisions. Take a long-term view.
19. Consider the negative effects of mitigation actions (or of failure to take them) on neighboring communities; minimize these effects.
20. Provide mitigation benefits and disaster assistance based on need, not citizenship.
21. Respect the personal freedom and life choices of individuals.
22. Respect private property; restrict its use where necessary to prevent disasters or where other important values are jeopardized.

23. Encourage landowners and property owners to acknowledge their ethical duties to minimize the creation of hazards and to protect important public values; promote a hazards-based land ethic.
24. Hold those individuals or entities that create or cause a hazard (or disaster) culpable for it; those who cause or contribute to a disaster should bear responsibility for it.
25. Require those who benefit from risky behavior to assume (a portion of) the costs of mitigation.
26. Work to modify expectations about public disaster assistance.
27. Clarify the ethical assumptions of analytic tools used in mitigation decisions.
28. Convey the inherent uncertainties of science where they exist.

Course Developer References

See *Student and Instructor Readings; Additional Readings*, above

Mileti, Dennis S. 1999. *Disasters By Design: A Reassessment of Natural Hazards in the United States*. Washington, D.C.: Joseph Henry Press.

Burby, Raymond J., Ed. 1998. *Cooperating With Nature: Confronting Natural Hazards with Land-Use Planning for Sustainable Communities*. Washington, D.C.: Joseph Henry Press.

FEMA. August 2001. *Understanding Your Risks: Identifying Hazards and Estimating Losses*. Washington, D.C.: FEMA 386-2.