

COASTAL HAZARDS & INLAND FLOOD RISKS: NON-STRUCTURAL CONTROLS SESSION 2A

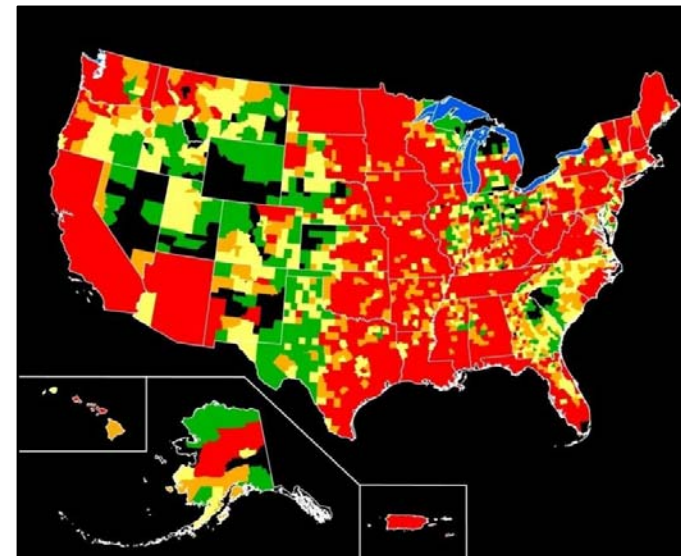


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EXPLORATORY QUESTIONS

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- (1) What are various types of non-structural measures?
- (2) What are the issues associated with non-structural measures?
- (3) What financial resources are available?
- (4) What are the implementation challenges?
- (5) What are alternative uses for repetitive flood loss areas?



NON-STRUCTURAL MEASURES = MITIGATION

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Mitigating means planning, programming, setting policies, co-ordinating, facilitating, raising awareness, assisting and strengthening. It also understands educating, training, regulating, reporting, forecasting, warning and informing. However, it does not exclude insuring, assessing, financing, relieving and rehabilitating. If structural measures are the bones of a flood management program, then mitigation is its flesh.

Andjelkovic, Ivan. 2001. Guidelines on non-structural measures in urban flood management. International Hydrological Program, IHP-V No. 50, UNESCO, Paris.

NON-STRUCTURAL MEASURES

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Two categories:

(1) Reduce susceptibility to flood damage

- ▣ Floodplain regulations
- ▣ Development and redevelopment
- ▣ Warning and preparedness
- ▣ Flood proofing

(2) Reduce flood impact on individuals and community

- ▣ Flood insurance
- ▣ Relief and recovery

TYPES OF NON-STRUCTURAL MEASURES

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- Development & Planning
 - ▣ Comprehensive/master plans, floodplain management plans, capital improvement plans
 - ▣ Land use regulation (improve infiltration, agriculture to forest, growth and expansion management)
 - ▣ Development policy (open space programs, infrastructure relocation, zoning ordinances, land /property acquisition)
 - ▣ Based on risk assessments
- Fiscal measures (taxation, incentives, impact fees)
- Private sector (lending, insurance, building industry)

TYPES OF NON-STRUCTURAL MEASURES (CONT.)

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- Education
 - ▣ Hazard disclosure (hazard mapping, real estate disclosure requirement)
 - ▣ Community awareness programs (signage, hazard notification, workshops)
- Reduction of vulnerability
 - ▣ Economic
 - ▣ Social
 - ▣ Built environment (building codes, flood proofing)
- Flood Preparedness & Emergency Response
 - ▣ Response, recovery, and evacuation plans
 - ▣ Forecasting and warning

BENEFITS OF NON-STRUCTURAL MEASURES

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- No false sense of security (\neq levee effect)
- Controls floodplain development rather than attracting it
- Does not increase flood potential elsewhere
- Generally low cost alternatives to structural measures (future expenditures, reduced impact)
- Flexible enough to keep up with changing environment and society
- Supports natural floodplain

FINANCIAL RESOURCES

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- FEMA programs
 - ▣ National Flood Insurance Program, Increased Cost of Compliance
 - ▣ Hazard Mitigation Grant Program (HMPG)
 - ▣ Flood Mitigation Assistance
 - ▣ Public & Individual Assistance, Unmet Needs Program, SBA loans (require PDD)
- USACE programs
 - ▣ Small Flood Control Projects (Flood Control Act)
- USDA
 - ▣ Rural housing loans and grants
 - ▣ Emergency loans
- EPA
 - ▣ Clean/Drinking Water Revolving Fund

FINANCIAL RESOURCES

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- Department of Housing & Urban Development
 - ▣ Community Development Block Grants
 - ▣ Home Investment Partnerships Program
 - ▣ Disaster Recovery Initiative (buyouts)
 - ▣ Public Housing Modernization Reserve for Disaster and Emergencies
 - ▣ Section 108 Loan Guarantee Program
 - ▣ Single Family Home Mortgage Insurance for Disaster Victims
- NOAA
 - ▣ Coastal Zone Management Program
- Economic Development Administration
 - ▣ Post-Disaster Economic Recovery
- National Resource & Conservation Service Programs

IMPLEMENTATION CHALLENGES

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- Political and public will
- Opposition from landowners & developers
- Lax enforcing of land use and mitigation regu
- Suite of exemptions for existing developmer
- Planning uncertainty
 - ▣ Communities change
 - ▣ Floodplains change (slow map modernization)
 - ▣ Planning standards (future vs. past or status quo)
- Inflexibility of Federal policies (e.g. NFIP)
- Cost-sharing requirements for federal assistance



IMPLEMENTATION CHALLENGES (CONT.)

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- Coordination with federal, state, and local programs and regulations
- Floodplain mgmt. for entire watersheds
- Compliance with planning objectives
- Difficult to assess benefit of non-structural measures in traditional cost/benefit analyses

REPETITIVE FLOOD LOSS AREAS

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- Open space
- Recreational space and parks (e.g. river walks)
- Nature trails and ecosystem restoration



BOTTOM-LINE

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- ❑ Avoid hazardous areas
- ❑ Increase resilience of community
- ❑ Reduce losses
- ❑ Share impact equitably
- ➔ Correct existing problems
- ➔ Prevent creating new problems
- ➔ Adopt “Do No Harm” policy (No Adverse Impact)
- ➔ Adapt consistently to a dynamic environment

CYCLES OF THE SEASONS

