

**Breaking the Disaster Cycle:  
Future Directions in Natural Hazard Mitigation**

*Flood Insurance as Hazard Mitigation;  
Assessing Insurance*

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# *Flood Insurance as Hazard Mitigation; Assessing Insurance*

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## ➤ Objectives:

5.1 Describe the extent of property damage from floods.

5.2 Describe the trends in insured catastrophic losses from natural hazards.

5.3 Review the role of insurance, as part of a natural hazard mitigation system.

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## ➤ Objectives:

- 5.4 Understand the rationale for the use of federal flood insurance under the National Flood Insurance Program, as a hazard mitigation method.
- 5.5 Discuss the key elements of the flood insurance program: identification of flood hazard areas and risk, mitigation of flood losses through mandated local regulation of construction in floodplains, and provision of flood insurance at affordable rates.
- 5.6 Discuss the extent of participation by communities in the Community Rating System.

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## ➤ Objectives

- 5.7 Identify the major problems with the existing flood insurance program.
- 5.8 Participate in a role playing exercise to assess the effectiveness of flood insurance in mitigating flood hazards.

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## ➤ Objective 5.1

- Describe the extent of property damage from floods:
  - \$5.1 billion in damage each year nationwide
  - Most frequently declared type of disaster in 1990s
  - Property damage from flooding increasing

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Flood damage in Louisiana (Source: FEMA)

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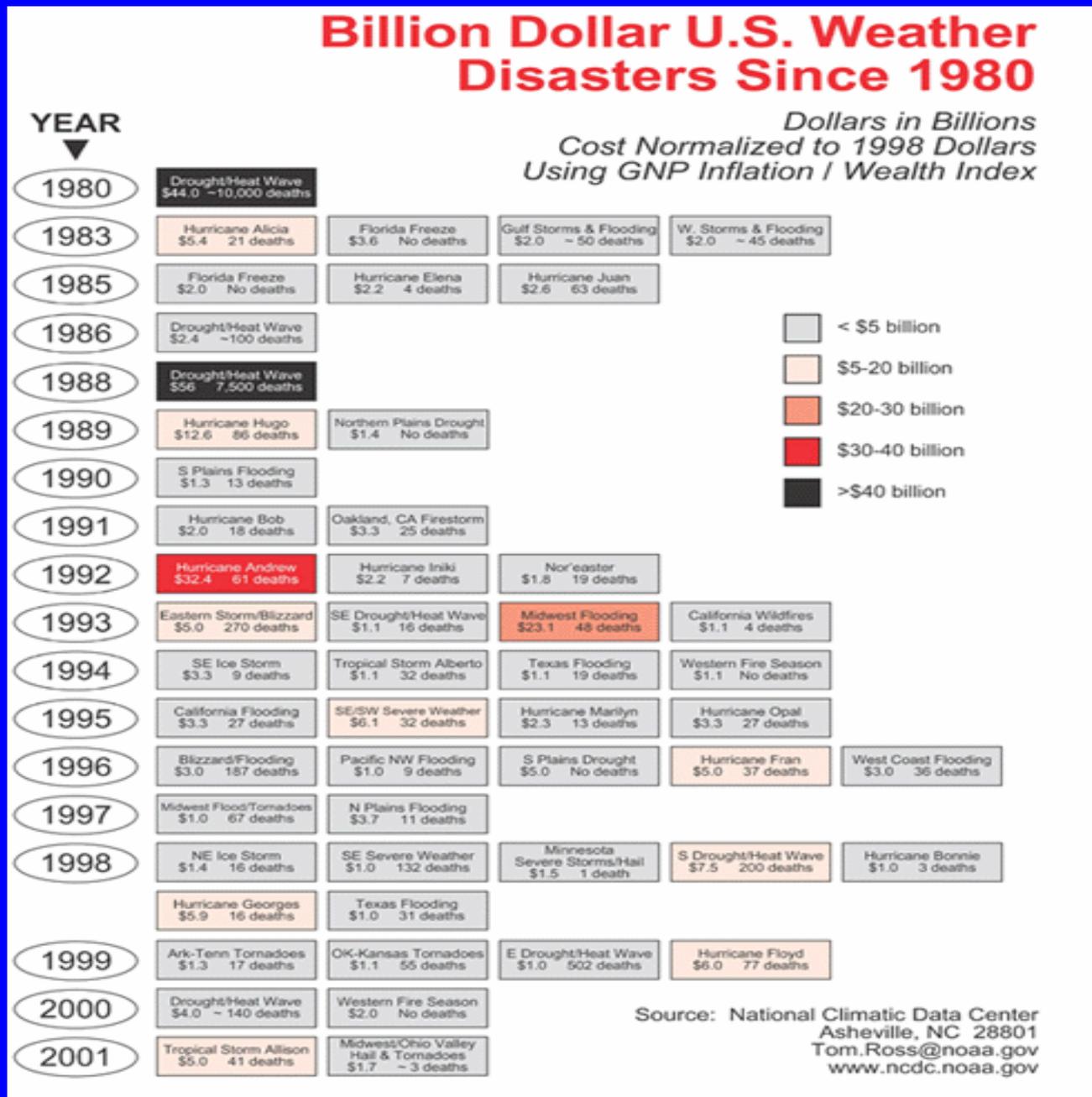
## ➤ Objective 5.2

- Describe the trends in insured catastrophic losses from natural hazards:
  - Cost of natural disaster rising

**Figure 5.1 Top Ten Natural Disasters (Ranked by FEMA Relief Costs)**

<b>Event</b>	<b>Year</b>	<b>FEMA Funding*</b>
<b>Northridge Earthquake (CA)</b>	<b>1994</b>	<b>\$6.999 billion</b>
<b>Hurricane Georges (AL, FL, LA, MS, PR, VI)</b>	<b>1998</b>	<b>\$2.333 billion</b>
<b>Hurricane Andrew (FL, LA)</b>	<b>1992</b>	<b>\$1.849 billion</b>
<b>Hurricane Hugo (NC, SC, PR, VI)</b>	<b>1989</b>	<b>\$1.308 billion</b>
<b>Midwest Floods (IL, IA, KS, MN, MO, NE, ND, SD, WI)</b>	<b>1993</b>	<b>\$1.141 billion</b>
<b>Hurricane Floyd (CT, DE, FL, ME, MD, NH, NJ, NY, NC, PA, SC, VT, VA)</b>	<b>1999</b>	<b>\$1.085 billion</b>
<b>Tropical Storm Allison (FL, LA, MS, PA, TX)</b>	<b>2001</b>	<b>\$879.5 million</b>
<b>Loma Prieta Earthquake (CA)</b>	<b>1989</b>	<b>\$865.5 million</b>
<b>Red River Valley Floods (MN, ND, SD)</b>	<b>1997</b>	<b>\$734.0 million</b>
<b>Hurricane Fran (MD, NC, PA, VA, WV)</b>	<b>1996</b>	<b>\$621.2 million</b>

# ➤ Figure 5.2 Billion Dollar U.S. Weather Disasters Since 1980



## ➤ Figure 5.3 Total Major Disaster Declarations

(Source: [http://www.fema.gov/library/dis\\_graph.shtm](http://www.fema.gov/library/dis_graph.shtm))

Year	Total Disaster Declarations
1980	23
1981	15
1982	24
1983	21
1984	34
1985	27
1986	28
1987	23
1988	11
1989	31
1990	38
1991	43
1992	45
1993	32
1994	36
1995	32
1996	75
1997	44
1998	65
1999	50
2000	45
2001	45
<b>Total</b>	<b>787</b>
<b>Average</b>	<b>35</b>

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## ➤ Objective 5.3

- Review the role of insurance as part of a natural hazard mitigation system:
  - Failure of reactive approach
  - Insurance as an incentive to modify or relocate
  - Shifting recovery costs

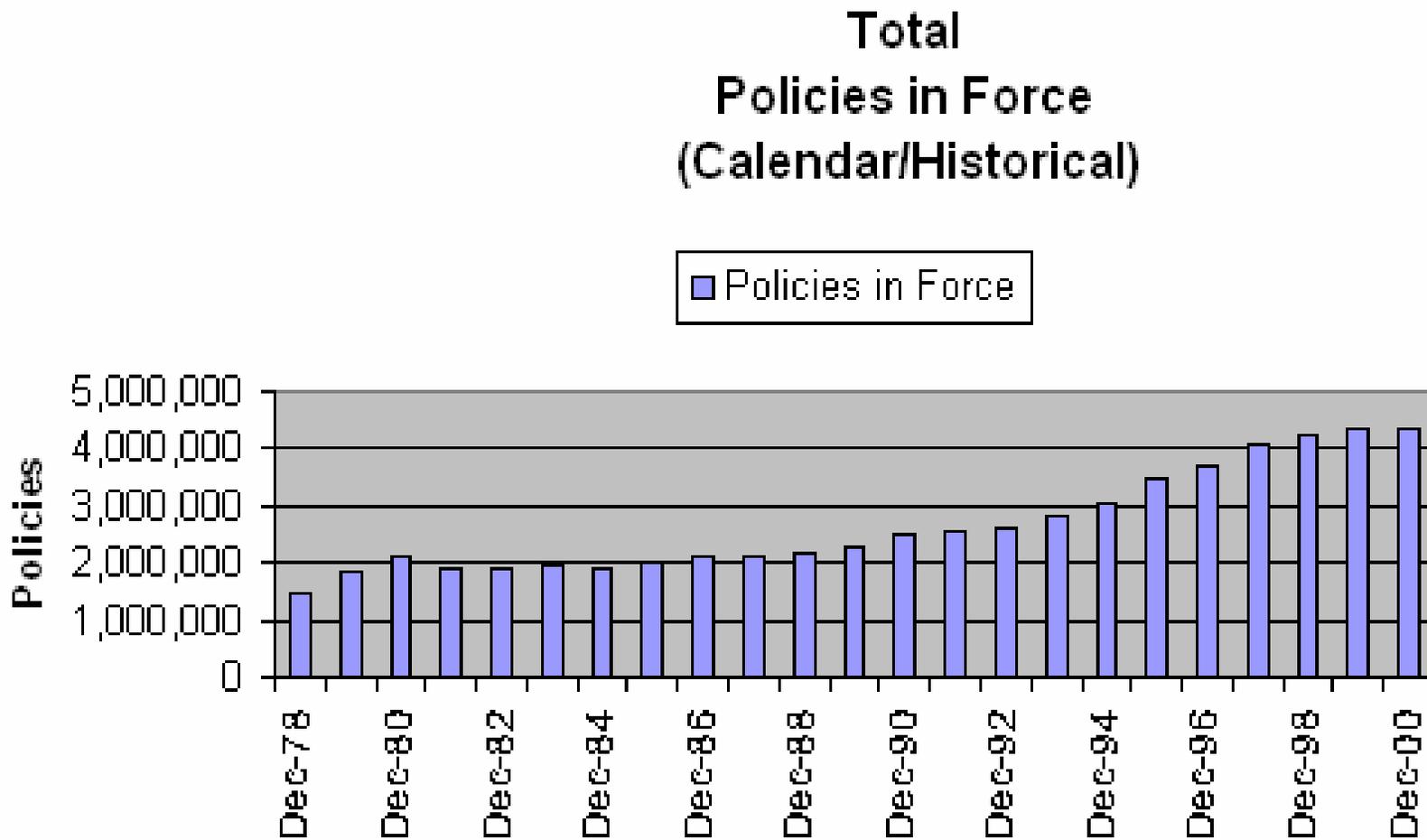
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## ➤ Objective 5.4

- Understand the rationale for the use of federal flood insurance (under NFIP) as a hazard mitigation method:
  - Structural flood control favored historically
  - Reassessment by Congress
  - 1968 – National Flood Insurance Program (NFIP) established

➤ **Figure 5.4 NFIP Policies in Force**



Source: [www.fema.gov](http://www.fema.gov)

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## ➤ Objective 5.5

- Discuss the key elements of the flood insurance program:
  - identifying flood hazard areas and risk,
  - providing flood insurance at affordable rates and
  - mitigating flood losses through mandated local regulation of construction in floodplains
  - FIRMs
  - Special Flood Hazard Areas
  - Floodplain management
  - Federal Insurance and Mitigation Administration (FIMA)

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FEMA representatives give information about flood clean-up and recovery to DC residents (Source: FEMA)

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## ➤ Objective 5.6

- Discuss the extent of participation by communities in the Community Rating System:
  - Three types of activities:
    - ✓ reduce flood losses,
    - ✓ facilitate accurate insurance rating, and
    - ✓ promote awareness of flood insurance
  - Four categories of activities:
    - ✓ public information,
    - ✓ mapping and regulations,
    - ✓ flood damage reduction, and
    - ✓ flood preparedness

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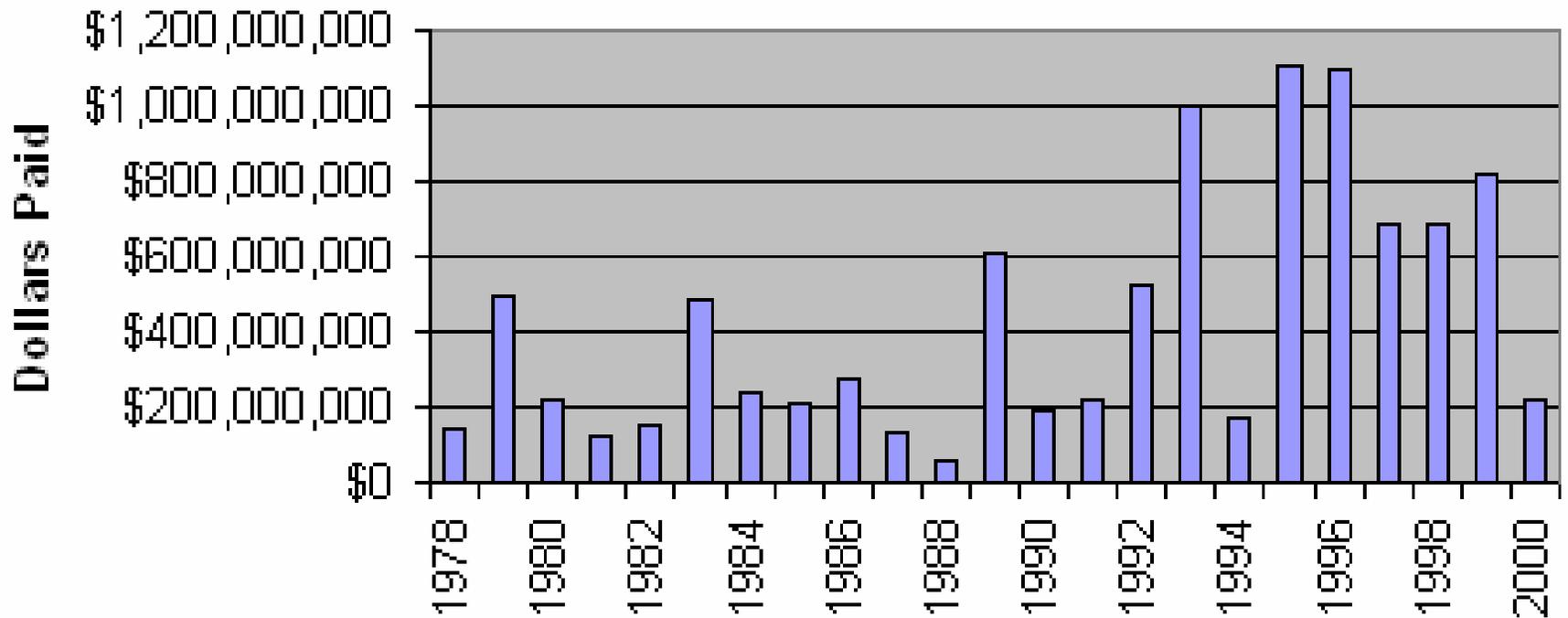
## ➤ Objective 5.7

- Identify the major problems with the existing flood insurance program:
  - Could encourage people to build in floodplain
  - Self-supporting program?
  - Potential for big losses in heavy disaster years
  - Repetitive damage still exists
  - Weak enforcement of planning requirements
  - ineffective in reducing flood losses to *existing* uses

➤ **Figure 5.5 NFIP Loss Payments 1978 - 2000**

### Loss Dollars Paid (Fiscal/Historical)

Loss Payments



Source: [www.fema.gov](http://www.fema.gov)

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➤ **Figure 5.6 NFIP Losses Paid:  
1980 - 2000**

Source: [http://www.fema.gov/library/dis\\_graph.shtm](http://www.fema.gov/library/dis_graph.shtm)

<b>Fiscal Year Ending</b>	<b>Loss Dollars Paid</b>
Sep-80	\$219,449,804
Sep-81	\$127,170,169
Sep-82	\$148,618,700
Sep-83	\$484,549,022
Sep-84	\$242,600,803
Sep-85	\$206,214,919
Sep-86	\$280,733,903
Sep-87	\$130,397,209
Sep-88	\$61,220,128
Sep-89	\$608,847,765
Sep-90	\$186,334,357
Sep-91	\$217,290,773
Sep-92	\$527,356,189
Sep-93	\$1,004,523,352
Sep-94	\$170,831,977
Sep-95	\$1,104,353,956
Sep-96	\$1,090,606,379
Sep-97	\$683,520,585
Sep-98	\$689,071,293
Sep-99	\$822,758,563
Sep-00	\$215,848,369
<b>Total</b>	<b>\$9,242,298,213</b>

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## ➤ Objective 5.8

- Participate in a role playing exercise to assess the effectiveness of flood insurance in mitigating flood hazards.
  - Examine:
    - ✓ the effectiveness of flood insurance in mitigating flood hazards and
    - ✓ the need for additional measures to reduce the town's vulnerability