Introduction

This lesson explores the reasons for communities to take steps to reduce hazard risks through mitigation. After completing the reading and the activities, you should be able to:

- Explain the trends that have resulted in the dramatic increases in the cost of disaster response, recovery, and rebuilding.
- Describe the relationship between sustainability and disaster-resistant communities.
- Define mitigation as it applies to natural and manmade hazards.
- Explain the intent and major components of Federal hazard mitigation initiatives, including the Disaster Mitigation Act of 2000.
- Describe hazard mitigation successes.

Increased Costs of Disasters

Photos: Examples of damage from natural disasters. Top photo shows flooding in populated city. Bottom photo shows a crumbling bridge.

Each year the United States sustains natural and manmade disasters that cost hundreds of lives and average billions of dollars in losses. These disasters are caused by floods, wildfires, winter storms, tornadoes, landslides, earthquakes, hurricanes, and other natural events, as well as intentional and unintentional manmade hazard events. These circumstances demand the attention of government at all levels, the private sector, and individuals, to take steps to decrease hazard risks.

Risk means the estimated impact a hazard event would have on people, services, facilities, and structures in a community, and the likelihood of an occurrence resulting in those conditions.

Over the last several decades, land development has led to sprawling suburban communities and homes, built with minimal attention to protection against high winds, flooding, wildfire, or other natural hazards. More people were, and still are, moving to and building in areas that put them in harm's way.

Sustainability and Disaster-Resistant Communities

Photo: Collapsed house destroyed by tornado.

According to the World Commission on Environment and Development, sustainable development "meets the needs of the present without compromising the ability of future generations to meet their own needs."

In sustainable communities, decisions made by the present generation will not reduce the options of future generations. The present generation will pass on a natural, economic, and social environment that will provide a high quality of life. Some U.S. communities, devastated by hurricanes and other hazard events in the first 5 years of the millennium, have demonstrated that developed, populated hazard areas may not be sustainable.

An essential characteristic of sustainable communities is resistance to disasters. A disaster-resistant community is one in which significant steps and actions have been taken to reduce the community's vulnerability to potential hazard events. When an event does occur, the rewards of these steps and actions include:

- Saved lives.
- Reduced damage to property.
- Reduced economic losses.
- Minimized social disruption.
- Ability of local government to resume operations quickly.
- Shorter recovery period for the community.
- Improved attractiveness to individuals and businesses by demonstrating effectiveness in dealing with a disaster.

Communities pursue disaster resistance through one or both of the following:

- Reducing risk to future development through location (planning), better codes, and implementation and enforcement of codes.
- Taking steps to protect existing development.

Definition of Hazard Mitigation

These strategies for reducing disaster damage and destruction are commonly known as hazard mitigation. ***Hazard mitigation*** is defined as sustained actions taken to reduce or eliminate long-term risk to people and property from hazards and their effects.

The purpose of hazard mitigation is twofold:

- To protect people and structures.
- To minimize the costs of disaster response and recovery.

Hazard Mitigation and Emergency Management

The many tasks and functions of emergency management may be summarized into a cycle through which communities *prepare* for emergencies and disasters, *respond* to them when they occur, help people and institutions *recover* from them, and *mitigate* their potential effects to reduce the risk of future loss.

Preparedness ensures people are ready for a disaster and respond to it effectively. Preparedness requires figuring out what you'll do if essential services break down, developing a plan for contingencies, and practicing the plan.

Response begins as soon as a disaster is detected or threatens. It involves search and rescue mass care, medical services, access control, and bringing damaged services and systems back on line. When State and local governments are overwhelmed by a disaster, they may seek Federal assistance through a Presidential disaster or emergency declaration. Typically, Federal assistance is financial. However, in catastrophic events, the Federal government may be asked to mobilize resources from any number of Federal agencies, and to participate in the response.

Recovery, or rebuilding, after a disaster takes years. Services, infrastructure (utilities, communication, and transportation systems), facilities, operations, and the lives and livelihoods of many thousands of people may be affected by a disaster. Local community and State governments do what they can to bring about the recovery. When those resources are expended, Federal loans and grants can help. Funds are used to rebuild homes, businesses and public facilities, to clear debris and repair roads and bridges, and to restore water, sewer and other essential services.

Hazard Mitigation and Emergency Management (Continued)

Viewed broadly, the goal of all **hazard mitigation** efforts is risk reduction. The emphasis on *sustained* actions to reduce long-term risk differentiates mitigation from preparedness and response tasks, which are required to survive a disaster safely. Mitigation is an essential component of emergency management. Effective mitigation actions can decrease the impact, the requirements, and the expense of a natural hazard event.

Hazard Mitigation Programs

Hazard mitigation takes many forms. A few examples are effective floodplain management, engineering of buildings and infrastructures to withstand earthquakes, and the implementation of building codes designed to protect property from natural hazards**.** The Federal government has created several programs intended to help States and communities reduce or eliminate long- term risk from hazards.

National Flood Insurance Program

For decades, the national response to flood disasters was simply to provide disaster relief to flood victims. Efforts also were made to install flood-control constructions such as dams, levees, and seawall.

Funded by tax dollars, this approach failed to reduce the losses. It also did not provide a way to cover the damage costs of all flood victims. To compound the problem, the public generally could not buy flood coverage from insurance companies, because private insurance companies see floods as too costly to insure.

In the face of mounting flood losses and escalating costs of disaster relief to U.S. taxpayers, Congress established the National Flood Insurance Program (NFIP) in 1968. The goals of the program are to reduce future flood damage through floodplain management, and to provide people with flood insurance. More than 35 years later, the NFIP continues to offer flood insurance to homeowners, renters and business owners, provided their communities use the NFIP's strategies for reducing flood risk. Community participation in the NFIP is voluntary, although some states require NFIP partnership as part of their floodplain management programs. NFIP flood insurance is the best protection against the devastating financial losses that floods cause.

Hazard Mitigation Programs (Continued)

Floodplain management

Floodplain management refers to an overall community program of corrective and preventive measures for reducing future flood damage. These measures generally include zoning, subdivision, or building requirements, and special-purpose floodplain ordinances. When a community chooses to join the NFIP, it must adopt and enforce minimum floodplain management standards for participation.
FEMA works closely with state and local officials to identify flood hazard areas and flood risks. Floodplain management requirements within Special Flood Hazard Areas (SFHAs) are designed to prevent new development from increasing the flood threat and to protect new and existing buildings from anticipated flood events.

Communities participating in the NFIP must require permits for all development in the SFHA. Permit files must contain documentation to substantiate how buildings were actually constructed. The community also must ensure that construction materials and methods used will minimize future flood damage. In return, the Federal government makes flood insurance available for almost every building and its contents within the community.

Flood Mapping

Flood maps are used to locate a property within a particular flood zone. When considering purchasing or renewing a flood insurance policy, a property owner needs to know whether the property is in a low- to moderate or high-risk area to determine which policy is right for them.
Over the years, many of the government's flood insurance maps have become obsolete due to urban growth, changes to river flows and coastlines, and even flood mitigation efforts like drainage systems and levees. Accurate information is essential to inform property owners of emerging flood risks and to determine appropriate rates for flood insurance coverage.

Map Modernization is FEMA's response to the need to update and maintain flood hazard maps. This initiative is creating digital flood insurance rate maps (DFIRMs) for more than 20,000 communities across the United States. In addition, the DFIRMs will become the platform for identifying other potential risks such as land erosion, deforestation and ice flows.

Hazard Mitigation Programs (Continued)

This five-year effort will transform flood maps into maps that are more accurate, easier-to-use and readily available to consumers. When Map Modernization is complete, you will be able to print and use these maps right from your desktop. FEMA's commitment to this aggressive, multi-year initiative will save the government an estimated $45 billion over the next 50 years.

Flood Insurance

Unlike a standard homeowners policy, flood insurance covers losses to property caused by flooding. Some of the things a standard flood policy will cover include:

- structural damage.
- furnace, water heater and air conditioner.
- flood debris clean up floor surfaces such as carpeting and tile.

A flood insurance policy can also cover the contents of a home, such as furniture, collectibles, clothing, jewelry and artwork.

Policies are available in three forms: **Dwelling** (most homes), **General Property** (apartments and businesses), and **Residential Condominium Building Association** (condominiums).

If a property owner has a federally backed mortgage on a home located in a high-risk area, federal law requires the purchase of flood insurance. Also, if a property owner received a federal grant for previous flood losses, they must have a flood policy to qualify for future aid.

National Dam Safety Program (NDSP)

Dams are an integral part of our Nation's infrastructure, equal in importance to bridges, roads, and airports. There are now more than 10,000 dams in the United States classified as high-hazard potential, meaning that their failure from any means, including a terrorist attack, could result in loss of life, significant property damage, lifeline disruption, and environmental damage.

The Dam Safety and Security Act of 2002, which was signed into law on December 2, 2002, addresses safety and security for dams through the coordination by FEMA of federal programs and initiatives for dams and the transfer of federal best practices in dam security to the states. The Act of 2002 includes resources for the development and maintenance of a national dam safety information network and the development by the National Dam Safety Review Board of a strategic plan that establishes goals, priorities, and target dates to improve the safety and security of dams in the United States.

Hazard Mitigation Programs (Continued)

The Act of 2002 continues all of the programs established by the 1996 Act that have been serving to increase the safety of the Nation's dams, including grants to the state dam safety programs that regulate over 78,000 dams in the United States; training for state dam safety staff and inspectors; and technical and archival research, including the development of devices for the continued monitoring of the safety of dams.

National Earthquake Hazard Reduction Program

Earthquakes cannot be prevented, but their impacts can be managed to a large degree so that loss of life and property can be reduced. To this end, the National Earthquake Hazards Reduction Program (NEHRP) seeks to mitigate earthquake losses in the United States through both basic and directed research and implementation activities in the fields of earthquake science and engineering. The NEHRP is the Federal Government's coordinated approach to addressing earthquake risks. Congress established the program in 1977 (Public Law 95-124) as a long-term, nationwide program to reduce the risks to life and property in the United States resulting from earthquakes. The NEHRP is managed as a collaborative effort among the Federal Emergency Management Agency (FEMA), the National Institute of Standards and Technology (NIST), the National Science Foundation (NSF), and the United States Geological Survey (USGS).

The four goals of the NEHRP are to:

- Develop effective practices and policies for earthquake loss-reduction and accelerate their implementation.
- Improve techniques to reduce seismic vulnerability of facilities and systems.
- Improve seismic hazards identification and risk-assessment methods and their use.
- Improve the understanding of earthquakes and their effects.

National Hurricane Program

The National Hurricane Program conducts and supports many projects and activities that help protect communities and their residents from hurricane hazards. Three key components of the Program are Response and Recovery; Planning, Training, and Preparedness; and Mitigation.

Hazard Mitigation Programs (Continued)

Response and Recovery

Helping communities and individuals repair damage, rebuild, and recover after hurricanes and coastal storms. Activities include: providing liaison teams to assist in the coordination of National Hurricane Center advisories and emergency evacuation activities with Federal, state, and local governments, and conducting post-flood evacuation studies.

Planning and Preparedness

Taking action to lessen the impact of hurricanes and coastal storms on communities and their residents. Activities include: evaluating and recommending improvements for emergency evacuation shelters, evaluating and developing emergency evacuation plans, and increasing public awareness of hurricane hazards through training and outreach programs.

Mitigation

Reducing the damage caused by hurricane winds and flooding through improvements in the built environment, including residential and non-residential buildings and their utility systems. Activities include: assessing building performance after significant hurricanes and coastal storms, developing designs for hazard resistant construction in new buildings and retrofitting techniques for existing buildings, and recommending improvements in state and local regulatory programs.

Disaster Mitigation Act of 2000

Congress showed its ongoing support for reducing the rising cost of disasters through hazard mitigation when it passed the Disaster Mitigation Act of 2000 (DMA 2000).

DMA 2000 amends the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act). The Stafford Act was signed into law in 1988 and amended the Disaster Relief Act of 1974. The Stafford Act provides the statutory authority for most Federal disaster response activities, especially as they pertain to FEMA and FEMA programs.

DMA 2000 created an emphasis on hazard mitigation planning at the State and local levels of government and established a national program for pre-disaster hazard mitigation.

The DMA calls upon States to:

- Coordinate State and local government activities related to hazard mitigation.
- Prepare and submit a State Mitigation Plan and update every 3 years as a condition for receiving certain forms of disaster assistance.
- Make available, from hazard mitigation grant programs, funds for assisting local jurisdictions with hazard mitigation planning and projects.
- Provide technical assistance and training to local governments in developing hazard mitigation plans, and in applying for and managing hazard mitigation grants for planning and for projects.

Local governments are asked to:

- Prepare and adopt a jurisdiction-wide natural hazard mitigation plan as a condition of receiving post-disaster grants for hazard mitigation.
- Review the hazard mitigation plan and, if necessary, update it every 5 years.

Hazard Mitigation Best Practices

Throughout the United States, individuals, businesses, and communities have been taking action to reduce or prevent future damage from disasters. The following are examples of hazard mitigation best practices.

Flood Mitigation: Rising Above the Flood
Belhaven, North Carolina

The first thing that usually strikes visitors who enter the small harbor town of Belhaven (population 1,900) is that many of the homes, whether trailer or mansion, are elevated high enough to protect them from floodwaters. The town did not always look like it does now.

As a coastal town in North Carolina, Belhaven has often been battered by severe storms and hurricanes. In the last 8 years alone, it has been flooded by seven named storms and hurricanes, which resulted in tens of millions of dollars worth of damages. The public buildings that were regularly hit included the town's elementary school and the beloved but low-lying town library.

As far back as 1933, when children would be read to in the window of O'Neal's Drug Store, it was clear Belhaven needed a library. Still, it took almost two decades before a permanent library found a home on Main Street, just blocks from the picturesque Pantego Creek, which flows into the Pungo River. Because the town is located in the 100-year floodplain, the bungalow library remained in a vulnerable position for major flooding. "From 1996 to 1998 our former library flooded six times," said branch librarian Joan Bogun. "Since we had outgrown it anyway, it only made sense to rebuild to survive future floods."

After the devastation of Hurricane Fran in 1996, Belhaven city officials were determined to take action. They started an aggressive mitigation campaign to elevate structures. They would use Federal and State grant money where they could, and private money when the grant money ran out. "Our plan was to keep everybody out of harm's way," said Town Manager Tim M. Johnson.

Hazard Mitigation Successes (Continued)

Flood Mitigation: Rising Above the Flood (Continued)
Belhaven, North Carolina

Federal, State, and town officials worked together on two projects in the Hazard Mitigation Grant Program (HMGP), which is administered by the North Carolina Division of Emergency Management (NC DEM) and funded by FEMA. The first project elevated 232 eligible residences, and the second purchased Belhaven's old elementary school with the money going toward a new school out of the 100-year floodplain. The residential elevations accelerated after Hurricane Floyd in 1999. Both projects were completed before landfall of Hurricane Isabel in September 2003.

Not everyone waited for Federal money, however. For instance, the often-flooded Belhaven public library was rebuilt and elevated through a substantial donation from a local patron, community fundraising, and a State disaster relief grant. Completed in November 2001, the new structure is large enough to hold community meetings, events, and local projects.

Photo: Girl smiling in front of her "still standing" Belhaven home.

After Hurricane Isabel passed through North Carolina, media and disaster officials flocked to Belhaven as word spread of the success of its mitigation efforts. The story in Belhaven was the damage that did *not* happen.

Property owners who had elevated homes through HMGP funds experienced minimal or no flood damage from Isabel. The new library was also among the survivors. At the height of the storm, Belhaven's Main Street was under 3 feet of water, but the library's artwork and books remained above the surging waters.

Hazard Mitigation Successes (Continued)

High Wind (Tornado) Mitigation: Above-Ground Safe Room
Moore, Oklahoma – New Home and Safe Room for Homeowners

Don Staley and his family are no strangers to storms and tornadoes. Their first home was hit by a tornado in October 1998 and suffered minor damage but was destroyed by another tornado on May 3, 1999. They rode out both storms inside the house. "It was such a frightening sound," he said. "We decided we weren't going to ride out another one inside the house."

In December 2000, the Staley's new home was ready. Shortly after moving in, they had an above-ground safe room constructed on the back patio. The concrete room has 8-inch thick walls, an 18-inch thick ceiling, a 10-inch foundation, and a sliding entry door made of 12-gauge steel with ¾-inch plywood on each side. The safe room is equipped with battery-powered lights and a battery-powered television.

When the warning sirens sounded on May 8, 2003, Don took shelter in the safe room along with his dog and two cats to ride out the storm feeling very protected and safe. "I was watching it on TV in there," he recalled. "I could see it was coming my way and I could hear it coming. I could hear the roar. That's a sound you never forget."

When he emerged from the shelter, he found his house in shambles with the roof ripped off. Other houses on the street were also heavily damaged or destroyed. The Staleys used their safe room following the tornado to store and protect belongings they had salvaged.

The Staley's home was among the more than 300 homes destroyed in the city that day. Whereas a severe tornado hit the city in May of 1999 claiming 44 lives, there were no deaths in the 2003 tornado. The absence of fatalities is attributed to community preparedness, improved early warning systems, and the many safe rooms and shelters that have been built.

Staley sums it all up, "The safe room saved my life, it came through with flying colors. It's worth a million bucks to me."

Hazard Mitigation Successes (Continued)

Earthquake Mitigation: Public School Retrofit Program
Lake Washington, Washington – Efforts Prompted By Parents and Staff

It was April 29, 1965, when the last major earthquake struck western Washington State. While aware of the possibility of another event, locals had been lax in their efforts to take action. With population growth over the years, and the building of more schools in the Lake Washington School District, parents and district staff members began vocalizing their concern about the risk of earthquake and what would happen to their children in such an event.

In early 1992, local engineers assessed the safety of the school buildings. Because schools did not have a lot of money, local funds would be used, and a plan was developed. The plan would determine the cost to complete structural and nonstructural projects for seismic retrofit.

The school district including Kirkland, Redmond, and parts of King County imposed a construction levy on the 1992 general election ballot to raise funds for seismic upgrades, a safety program, and also an Americans with Disabilities Act (ADA) program. A 2-year levy was initiated in 1996 and a 4-year levy in 1998 with total funds, for retrofit alone, in the amount of about $6 million. Structural and nonstructural retrofitting has been done.

On February 28, 2001, mitigation and safety measures in the Lake Washington School District were tested when a strong 6.8 earthquake struck the Nisqually Basin and Puget Sound area of western Washington. Most of the schools in the district are built on a liquefaction zone that caused the ground to "roll like jelly," said Forrest Miller, Director of Support Services for the School System. "The buildings were all tested and nothing failed. The only thing that fell was one light fixture in the oldest building which was built in 1952."

There are several successes to this story. Mr. Miller stated he is "so impressed with the people in this district who got things done!" Because of their vision and perseverance, lives as well as millions of dollars were saved. Due to their ongoing safety drills, the children and teachers were well trained, and were actually training the adults on what to do.

Custodians and other appropriate employees have received the Applied Technology Council (ATC) Training, which teaches rapid visual assessment of interior structures. Immediate inspection can be done after an incident, which in this case was instrumental in allowing classes to resume with minimal loss of time. Teachers and other school employees were tested beforehand to determine responsibility during earthquake and fire drills so every student would be accounted for and in their pre-decided location.

Hazard Mitigation Successes (Continued)

Earthquake Mitigation: Public School Retrofit Program (Continued)
Lake Washington, Washington – Efforts Prompted By Parents and Staff

The benefits are many. There are 25,000 students in the Lake Washington School District, which is the fifth largest in the state of Washington. There was no loss of life or injury, and 40 buildings in the district were saved by either new construction or seismic retrofit. To construct a new school building today would cost at least $36 million, and to find temporary housing for classrooms in case of damages would have cost thousands.

Flood (Storm Surge) Mitigation: Community Rating System Helps
Key Biscayne, Florida – Resulted From Hurricane Andrew

In 1992, Hurricane Andrew swept through southern Florida. The resulting storm surge and flooding destroyed a large portion of the Village of Key Biscayne and demonstrated the need for a plan to cope with flood hazards. Since entering the Community Rating System (CRS), the Village has implemented flood mitigation programs that reduce the impact of flooding, making it a safer community, while residents enjoy discounted flood insurance due to participation in the CRS.

The CRS has helped Key Biscayne to focus on systematic mitigation and has established an administrative link between the Village's and Dade County's mitigation activities. Three key activities promote hazard mitigation and inform the public about hazards and the benefits of flood insurance: the stormwater drainage maintenance program, an open space program, and the public outreach program. These three programs also helped the Village achieve a CRS rating of 6, giving residents outside the Special Flood Hazard Area (SFHA) a 10-percent reduction on their flood insurance premium, and a 20-percent reduction to residents within the SFHA.

Participation in the CRS has made Key Biscayne more vigilant in maintaining and improving the stormwater system. The Village is a co-permittee with Dade County and both have implemented a stormwater management program that reduces flooding and ensures that clean water is discharged into the waters of Dade County and the Village's deep well system.

The Village conducts public outreach to inform citizens about ongoing hazard mitigation strategies, provide information on what to do in the event of a hazard and educate the public about why mitigation is important.

By participating in the CRS, Key Biscayne has reduced flood losses, saving lives and property, and increased awareness of hazards and hazard mitigation, while providing its citizens with discounted flood insurance.

Hazard Mitigation Successes (Continued)

Wildfire Mitigation: Defensible Space Saves Home
Novajo County, Arizona

The home of Lois Trimble is located in the Pinedale area, Navajo County, Arizona, just 10 miles northwest of Show Low. They built their house over the years and it became their primary residence in 1981. The entire area around this home was burned by the Rodeo-Chediski Fire that swept through the community in late June 2002. However, the Trimble home was unscathed.

Mrs. Trimble explained, "The fire started on Monday. On Tuesday we were told that the fire was out. Wednesday morning, ash was raining down all around us. My son called and told us that the fire had exploded; we looked and saw it coming over the ridge. We were told to evacuate. We had 1 hour. Because we had experienced this before 5 years ago, we knew exactly what to grab – important papers, some food, clothes, and photo albums. My husband is an invalid so my daughter and I had to do it all." They were evacuated to the town of Eager and sheltered there until it was safe to return. The only building that survived the fire was their home.

Their home, while not damaged by fire, had smoke and soot inside and was not immediately habitable. During the previous few years, Mr. Trimble spread decomposed granite approximately 30 to 50 feet around his home. He keeps the pine needles clear because of the fire hazard they pose to their home. The decomposed granite also helps to keep the area clean after rain and absorbs any runoff. The Trimbles, in effect, created a defensible space. Trees, shrubs, and a garden area close to the house and within the cleared area did not burn. The fire leveled all of the neighbors' homes and outbuildings as well as burning the trees in the forest.

The current market value of the Trimble property is approximately $200,000. The cost of one dump truck load of decomposed granite is $120. Mr. Trimble has used four truckloads of material at a cost of less than $500. Clearly, the low investment of time and materials was proven very effective to protect their home from this devastating wildfire.

Read more Mitigation Best Practices on FEMA's website at http//www.fema.gov/fima/bp.shtm

Summary

This unit underscored how devastating and costly disasters can be. Unless the Nation, especially at the local level, changes the way it builds communities, the cost of disasters will continue to rise.

Lesson 1 also covered concepts of sustainability, disaster-resistant communities, emergency management, and mitigation, and how they relate to each other. With well-thought-out and sound hazard mitigation planning, communities can become safer, stronger, and more sustainable for future generations. Federal hazard mitigation initiatives provide technical and financial assistance to these efforts.

DMA 2000 further empowers local governments and communities to strive for sustainability through jurisdiction-wide, all-hazard mitigation planning.

The next lesson will describe the steps a community needs to take to begin to build a sustainable community through mitigation planning.

Hazard Mitigation in Your Community

This lesson underscored how devastating and costly disasters can be. Unless the Nation, especially at the local level, changes the way it builds communities, the cost of disasters will continue to rise.

1. What are some examples of sustainable development in your community?

2. What are examples of disaster-resistant planning or disaster-resistant construction in your community?

Test Yourself

1. Annually the dollar cost of disasters in the United States is: (*select one*)

   a.) thousands b.) millions c.) billions

2. In sustainable communities, decisions made by the present generation will: *(select one)*
   a) Reduce the options of future generations.
   b) Not reduce the options of future generations.
   c) Eliminate the options of future generations.
   d) None of the above.

3. Three ways to reduce the risk of future hazard damages to new development are:

   _____

   _____

   _____

4. Mitigation is defined as: _____ actions taken to reduce or eliminate long-term risk to people and property from hazards and their effects. (*select one*)

   a) fast
   b) legal
   c) sustained
   d) construction

5. One example of a State responsibility under the Disaster Mitigation Act of 2000 is: _____.

6. One example of a local government responsibility under the Disaster Mitigation Act of 2000 is: _____.

7. Match the mitigation program with the appropriate description below:

   a. NEHRP

   b. NDSP

   c. NHP

   d. NFIP

   _____ Goal is to reduce future flood damage through floodplain management and to provide flood insurance.

   _____ Includes grants to state dam safety programs and train dam safety staff.

   _____ Long-term nationwide program to reduce risk to life and property from earthquakes in the U.S.

   _____ Supports projects and activities to protect communities from hurricane hazards.