

**MODULE B
UNIT 4**

Animals in Disasters

Analyzing Risks Affecting Animals and Their Owners

Overview

In the following units you will begin to develop your community disaster plan for the care of animals and their owners. You will identify emergencies that are most likely to occur in your community and learn what actions should be taken before, during, and after these crises. For all hazards (natural, technological, or national security emergencies) you should follow five steps:

1. Work in teams that are made up of representatives from emergency management and the animal-care community.
2. Acquire information on local community hazards.
3. Follow the preparedness and mitigation steps identified in your community disaster plan.
4. Develop the animal-care annex to your community disaster plan.
5. Exercise (practice) your community disaster plan and update it periodically.

We will follow an example of determining local risk due to disasters at the end of this unit. Although you should analyze risks specific to your community, you should also know some general information about all major hazards. While you do not need a specific emergency plan for every possible emergency, you should be familiar with common emergencies and know what actions to take to protect yourself at home or elsewhere.

Objectives

Upon completion of this unit, you should be able to:

- ▶ Analyze your community's risks and vulnerabilities to certain hazards
- ▶ Mitigate hazards likely to affect your community, especially in terms of animal safety
- ▶ Address animal-related issues during a local disaster, including animal transportation and animal identification
- ▶ Understand the role of an Incident Command Center during a hazardous materials incident, including the role of your locality, State and the Federal government

Determining local hazards

There are many factors to consider when determining dangers to your community from natural hazards, technological hazards, or national security emergencies. These factors include:

- ▶ Your community's past history of emergencies caused by the hazard,
- ▶ Geographical considerations,
- ▶ Community characteristics, and
- ▶ Distance from transportation routes, large urban areas, large industrial areas, or military installations.

Past History

Does your community have a past history of certain types of emergencies? If your community has had floods, forest fires, or industrial accidents previously, these emergencies could happen again. You can learn about the history of emergencies from local newspaper records, emergency management offices, or your American Red Cross chapter. However, there is no guarantee that only those emergencies experienced in the past will happen in the future.

Geographical Characteristics

If you live near an ocean, river, fault line or mountains, related natural hazards could affect you. Learn the geography in your area and the associated hazards.

Community Characteristics

Your community has many important characteristics. A large city with important industries or military installations may be at risk from technological hazards. Cities may also be at risk for terrorist attack, as evidenced by the Oklahoma City and World Trade Center bombings. A small rural community may have high risks from natural hazards. Your emergency manager or city planner can provide information about your community relevant to its hazard vulnerability.

Distance from Transportation Routes, Cities, Industries, or Military Bases

Although your community may appear to have few risks, you may be close to high-risk areas. For example, airplanes may fly over your area. Hazardous materials transported by train, truck, or pipeline, and their routes may run through or near your community. Your local emergency management office can give you information to help you analyze your risk from those hazards.

Vulnerability analysis

To prepare yourself to deal with various types of hazards, you must learn what the potential dangers are and which ones are most likely to affect you. Once you have made this determination, the next step is to find out how much damage these hazards could cause in your community. This process is called *vulnerability analysis*. Your local emergency manager regularly conducts vulnerability analyses for your community. Ask your emergency manager for the results of these analyses.

Knowing the size and composition of the animal-care industries at risk is critical to understanding the risks associated with disasters. Review the table in the introduction to this course to determine:

- Which facets of the animal-care community are present in your community,
- What role they play,
- How many people are involved in these industries, and
- What economic value they have.

The number of pets that reside in a community can be estimated from the tables in Unit 2 of this module. Statistics regarding livestock and poultry facilities can be obtained from the U.S. Department of Agriculture. Other sources of information on animal-care providers and suppliers can be obtained from local contacts and the telephone directory.

Analyzing the risks

What are the major natural hazards? Natural hazards are those caused by natural events that pose threats to lives, property, and other assets society values. We will discuss natural hazards separately from the others because these often can be predicted and you can mitigate many of the damaging effects. Natural hazards tend to occur repeatedly in the same geographical locations either because they are related to weather patterns or because they are related to the geological characteristics of an area.

In this course, you will analyze the risk to your community from the following natural hazards:

- ▶ Severe thunderstorm
- ▶ Flood and flash flood
- ▶ Landslide and mudflow
- ▶ Tornado
- ▶ Hurricane
- ▶ Winter storm
- ▶ Drought and extreme heat
- ▶ Wildfire
- ▶ Earthquake
- ▶ Tsunami
- ▶ Volcanic eruption

If you are unfamiliar with any of these hazards and their associated risks, review Module A of this course.

Mitigation of hazards

We will examine your risk from natural hazards in the next section and look at ways to identify and mitigate the hazards in your community. We will also look at one specific type of hazard, hazardous materials.

There are many different mitigation strategies, some of which require money, but most of which use awareness, foresight, and creative efforts. Several of these mitigation strategies are explained to follow. Think of ways to apply mitigation to your community.

Prevent the creation of the hazard in the first place

This is the most basic mitigation strategy and is carried out through a community's fire regulations, building codes, and other ordinances. For example, the requirement that all public buildings have sprinkler systems is a mitigation technique against a major fire. The inspection of new buildings to make sure construction conforms to local building codes is a way of mitigating fire or building collapse.

Reduce or limit the amount or size of the hazard manufactured

There are several ways to reduce or limit the amount or size of a hazard that is manufactured. Some of these are listed to follow.

- ▶ Restrict the use of hazardous chemicals to specific areas within a community.
- ▶ Surround the hazard by some type of containment structure.
- ▶ Ban vehicles carrying explosives from densely populated areas.
- ▶ Limit the amount of hazardous chemicals a manufacturing plant has on site at any one time.
- ▶ Impound nuclear wastes to prevent release.

Modify the basic qualities of a hazard

Suppose that dangerous chemicals were packaged with a neutralizing agent next to them. If the chemical container were damaged, the neutralizing agent would automatically release, thus minimizing the toxic effects of the spilled chemical. In other cases, a distinctive smell may be added to odorless liquid propane gas so people could detect its presence and avoid danger.

Modify the rate or spatial distribution of release of the hazard

Suppose that the Federal dam safety inspection program detected a crack or some other sign of instability in a dam. The water behind the dam could be lowered gradually so as not to endanger the environment down-river, while also relieving pressure on the dam until repairs are made. The use of levees may reduce damage in some areas and increase it in others.

Engage in research to eliminate a particular hazard

Private industry and the Federal government put money into research to develop ways of making materials (like building materials) and products (like autos) safer.

Information dissemination

Public information is key to preventing a wide range of emergencies. The disclosure of potential hazards through reports to land and structure buyers or chemical users is one form of public information that can be required.

Specific hazards concerning animals

Vulnerability of animals in agriculture

Nearly 90 percent of the food produced in the United States is grown and harvested by 5 percent of the population. This concentration of agriculture makes the nation's food supply vulnerable to disasters. Although new and emerging diseases represent the single largest threat to agriculture, natural disasters can also have a significant impact on farming communities. For example, during floods where farmers were not prepared to evacuate their livestock, many cattle drowned. As a result, some farmers left their profession out of fear of another disaster or out of guilt. In general farmers are reluctant to apply for grants for which they are eligible, such as family and business support. Protecting U.S. agriculture through disaster preparedness, therefore, has great potential to protect the U.S. food supply and maintain a traditional way of life.

Flooding

Considerable farming activity occurs in floodplains. Despite this, many farm owners and managers do not know if they are in a floodplain. This may lead to a false sense of security. There are many common consequences that result from flooding on farms, some of which are listed to follow.

- ▶ Animals can drown,
- ▶ Animals can be stranded without feed,
- ▶ Manure and waste handling facilities can overflow and spill manure into the environment and water supply, and
- ▶ Animal carcasses can pose a secondary threat.

Often the location of a farm cannot be changed, but measures to reduce the potential impact of flooding can be introduced.

- ▶ County area planning offices compile information on floodplains for most properties in their community.
- ▶ The natural resources department can provide maps and flood-risk assessment information on every property in their State. Farm owners and managers should obtain this information and review the location of their property, and access to their property, since flooding of either of these could leave them stranded.
- ▶ Civil engineers can help in the design and construction of flood-protected farm accesses and make recommendations on suitable locations for stables, paddocks and high-lying areas that may be used as pasture in the event of a flood.
- ▶ If homes are threatened, the companion animals residing within them are also at risk and must be considered in evacuation plans.

Manure pit spillage is overseen by the State department of environmental management. The natural resources department would address a contaminated water supply that may affect wildlife.

Fire safety

Barn and house fires occur too often and many animals are lost to them. Fires commonly break out in horse barns in the winter months when the doors are closed and the demand for energy is great. Many barns and stables are built of flammable materials. Some have gas heaters in them.

Farm owners and managers should consult with their local fire department on how to fireproof their stables. Local collaboration between farms and the fire department is highly recommended because it familiarizes farm owners and local firefighters. This familiarity is helpful in the event of an emergency. Simple factors, like knowing ahead of time where a farm is located, how many animals are there, and where to find large volumes of water can make the difference between rapid, successful response and total failure. Professional firefighters can also advise on brush control and the types of fire-resistant vegetation that can be planted. Veterinarians can further advise on the safety of these plants for animals.

Power supply

Many livestock operations and exotic animal collections depend on electric or gas power in the following ways.

- ▶ Dairy cows need to be milked.
- ▶ Poultry and swine must be cooled in the summer and heated in the winter.
- ▶ Many feed bunkers and silos have electric switches.
- ▶ Often well water can only be delivered with an electric pump.
- ▶ Exotic animals, birds and fish depend on electricity for heat and oxygen.

These needs represent high priorities in mitigation and response to disasters. These special needs should be addressed in every community. Information on how power is supplied can be obtained from the local electric company. If you depend on electric power for the safety of your animals, you should look into obtaining a secondary generator or another back-up system.

Wildlife

General concerns with wildlife arise from their displacement in disasters. For example, migrations of animals onto cropland can result in considerable damage. When displaced wildlife is forced to cross highways and to roam in built-up communities, there can be an increased incidence of vehicular accidents.

Types of wildlife are categorized according to State laws. Wildlife are grouped into native and non-native species.

Native Wildlife

Includes deer, raccoons, squirrels, bears, cougars, lynx, and bobcats. Most native wildlife belong to the citizens of the state and are only privately owned if they are bred and raised in captivity. Free-roaming native wildlife are managed by the natural resources department. Wildlife officials, licensed rehabilitators and veterinarians are generally the only authorized persons to treat these animals.

Non-native Wildlife

Includes big cats, zebras, ostriches, etc. Non-native wildlife are often referred to as exotics. Some States have licensing requirements for exotic animals, but this is not required nationwide. Many wildlife species are valuable and dangerous. If they were to escape, they could present a significant risk to the rescue workers, general public, and environment.

Safety in transport

Vehicular accidents are among the most common disasters that horse and livestock owners will encounter. Simple preventive measures include regular inspection of trailers and tow vehicles for safe operation. Excellent materials on transportation safety for horses are available from the following groups. Although these materials are designed for horse owners and emergency management personnel, much of the material applies to the transportation of all large animals.

Hawkins Guide on “Equine Emergencies” and “Horse Trailering on the Road.” Blue Green Publishing Company
PO Box 1255
Southern Pines, NC 28388

A videotape on “Equine Trailer Rescue.” Horse Park of New Jersey
PO Box 548
Allentown, NJ 08501

Companion animals are best transported in appropriate carriers. Unless properly secured, animals should not be transported in open pick-up trucks.

Escaping animals

In disasters the potential for animals to escape is high. This can lead to separation of owners and animals and other concerns including:

- ▶ Escaped animals may threaten livestock and the public.
- ▶ Escaped animals represent an increased risk to motorists who would normally not expect animals on the highways.
- ▶ Following heavy rain, floods, or snowfall pets may become disoriented, because their usual scent marks have been washed away or have become obscured. After these incidents an increased number of pets are often lost and found.
- ▶ From a public health perspective, the escape of food-producing animals can potentially expose them to toxic substances that may be poisonous to humans. This will be addressed in the section on hazardous materials.

Stray animals are those with owners that cannot be identified. The legal authority to deal with stray animals usually resides with the community animal control department. Animal control personnel are often law enforcement officers who will have many other responsibilities in a disaster. Therefore, although the animal control department may have the legal authority to deal with stray animals, the care of these animals may be a low priority. Alternative plans, such as working with a volunteer group, may need to be developed to address this issue.

Animal identification

Many animals look alike to persons other than their owners; however, only a few animals have permanent and positive identification.

Methods for permanent and unique identification include:

- ▶ Cattle can have microchips, tattoos, ear tagging and branding.
- ▶ Horses can be identified by microchips, tattoo, freeze branding, or by their whorls (photos front and side are needed) but this is rarely used in the United States.
- ▶ Companion animals should be tattooed or have microchips in addition to a standard collar with visible identification tag.

In disasters, animals and their owners can become separated, and animal abandonment has sometimes been a considerable problem.

Therefore, permanent identification should be seen as mitigation.

If animals have not been permanently identified when a disaster is pending, owners should seek reliable alternative methods to identify their animals. Examples of temporary identification methods include:

- ▶ Photographs,
- ▶ Painting fur or hooves with crayon,
- ▶ Fitting collars and identification tags,
- ▶ Using hair clippers to shave in initials or phone numbers, and
- ▶ Halters and neck bands.

Hazardous materials

Hazardous materials are common in households and in most sectors of the animal industries. Most farmers know the appropriate methods for dealing with commonly used hazardous materials, such as herbicides, pesticides, and fertilizers. For many people a broader understanding of what hazardous materials are and how to deal with them is important.

In many disasters hazardous materials spill and contaminate the environment and animals. Exposures such as these may introduce contaminants into the human food supply. In addition, pets that are rescued may have been exposed to hazardous chemicals – thus potentially affecting the animal and those who handle it without protective clothing. To find out more about potential and known exposure to toxins in animals contact:

- ▶ National Animal Poison Control Center in Urbana, Illinois,
- ▶ Any college or school of veterinary medicine,
- ▶ State animal disease diagnostic centers,
- ▶ Some human poison control centers, or
- ▶ U.S. Department of Agriculture or State veterinarian (for livestock only).

In livestock and other animals that graze or live outside, the contamination of their feed supply may potentially introduce hazardous materials into the human food supply. Even if an animal has ingested low levels and does not appear affected, its meat and milk may concentrate toxins and present considerable risk for humans through ingestion. Animals can be similarly contaminated through dermal exposure and absorption. Representatives from the U.S. Department of Agriculture, Food Safety and Inspection Service, are

trained and qualified to make recommendations concerning the safety and suitability of food for human consumption. Other sources of information are State chemists and the National Animal Poison Control Center.

Methods for dealing with hazardous materials should be specified in the appropriate sections of your community disaster preparedness plan. Only a brief overview of the various roles that agencies have at different levels will be given here.

The local role in incident response to a hazardous materials incident

As first responders at the scene of hazardous materials transportation spill, local emergency management officials, firefighters or police typically have the lead responsibility for establishing an Incident Command Center.

Establishing an Incident Command Center

Responsibilities of an Incident Command Center include the following.

- ▶ Identify the materials involved;
- ▶ Determine the risk or hazard posed by the spill;
- ▶ Monitor and contain the spill;
- ▶ Call for additional resources, such as the State department of environmental management;
- ▶ Isolate the scene, restrict or reroute traffic, and conduct evacuation if necessary;
- ▶ Provide first aid as needed;
- ▶ Fight any fires and protect against explosions;
- ▶ Keep the public informed of the hazards that exist, the actions taken, precautionary measures, and evacuation routes and destinations (if necessary); and
- ▶ Take overall scene management responsibilities.

The first local forces on the scene usually do not have the specialized clothing needed to rescue personnel in a chemical emergency without becoming victims themselves. Once a chemical emergency has been identified, specially equipped responders may arrive who are better able to take action. A fully encapsulated suit is often required in incidents involving toxic substances.

Your local emergency management agency will usually take on the following responsibilities.

- ▶ Notify appropriate State and Federal agencies;
- ▶ Send and receive messages;
- ▶ Record and disseminate information;
- ▶ Assume the public information role from the firefighters and/or police;
- ▶ Coordinate requests for outside assistance; and
- ▶ Activate a mobile command post, along with a driver, if required at the scene.

Agency/Center	Responsibility
Local public health department	Safeguards the public when food or water supplies may be affected or when dwellings may become contaminated.
Chemist and toxicologist from the local public health department	May provide advice on toxicity and personnel protection, as well as recommendations to the incident commander regarding actions to reduce public health hazards.
Public works department	May assist in containment and cleanup if they have adequate protective clothing and equipment.
State role	In a major incident, a local government may have to call on State agencies for assistance including specialized resources and knowledge. This may involve a number of State agencies; their potential roles are described to follow.

Agency/Center	Responsibility
State Emergency Management Agency	Arranges State and regional mutual aid support and provides liaison with State agencies.
State Department of Transportation	Assists and/or provides for identification and containment of all materials on State highways and freeways or unincorporated county roadways.
State Police or Highway Patrol	Provides general control of the perimeter of the incident (regulating traffic, for example) and will play other roles depending on State law and incident requirements.

Agency/Center	Responsibility
State Department of Natural Resources, Fish and Game and Regional Water Quality Control Boards	Provide recommendations and guidelines when hazardous materials spills are likely to contaminate streams and/or waterways, or would otherwise affect wildlife resources.
State OSHA Personnel	Possess technical knowledge useful to an incident commander in the areas of exposure to, protection from, and control of hazardous materials. In an incident in which employees have been injured due to exposure, or in a prolonged incident, State OSHA personnel may respond.
State Department of Health	Employs health scientists who can help assess the potential human impact of a toxic release.
State Department of Environmental Protection	Can predict the environmental impact of actions recommended by the incident commander at the site of disaster.
State and Local Fire Marshal	Have specific expertise relating to the behavior of chemicals in the environment and State fire codes.
Federal role	In the event of a major incident, the Federal government can provide assistance to the local incident commander through the National Response Center (NRC). This center, staffed by the U.S. Coast Guard, operates a 24-hour hotline to receive and relay notices of major hazardous materials discharges to the appropriate authorities. When needed, the NRC can also make the expertise and other resources of Federal agencies available to the local government. The following is a summary of the responsibilities of the key Federal agencies in response to a hazardous materials incident.

Agency/Center	Responsibility
Federal Emergency Management Agency (FEMA)	<p>Responsible for coordinating all civil emergency planning, management, mitigation, and assistance functions of the Federal government. Under Title III of the Superfund Amendments and Reauthorization Act (SARA Title III), FEMA is the primary Federal agency responsible for planning and related training for hazardous materials emergency management. This encompasses accidents at manufacturing, processing, storage, and disposal facilities, as well as hazardous materials in transit by highways, on water, by rail, and by air.</p> <p>FEMA provides resource information, technical and financial assistance to States for developing emergency plans for hazardous materials accidents and other types of emergencies, and assists State and local governments in hazardous materials training. FEMA also assists States and communities by interpreting Federal planning guidance, providing advice on plan preparation, and reviewing completed plans. FEMA regional staff are available to provide this support. When emergency exercises are conducted, FEMA regional officials provide support by reviewing the plans, observing exercises to test the plans, and providing technical evaluation of how well the plans worked.</p> <p>Finally, FEMA is available to provide financial relief in the event of an incident so serious that local and State funds prove inadequate.</p>
Environmental Protection Agency (EPA)	<p>The primary mission of the EPA is to protect and enhance our environment. EPA is the lead agency responsible for carrying out Title III reporting requirements, hazardous waste site operations, and Superfund site cleanup activities. EPA also conducts technical and environmental training programs related to hazardous materials, and chairs the 14-agency National Response Team (NRT). At the request of community officials, EPA can provide technical expertise on the full range of environmental contamination issues.</p>
Department of Transportation (DOT)	<p>Establishes the nation's overall transportation policy. It bears the primary responsibility for issuing standards and regulations relating to the transportation of hazardous materials nationwide. (Hazardous materials that are transported only within a State's borders are regulated by State law.) DOT is heavily involved in identifying safer modes of hazardous materials transport and has significant regulatory, research and development, and training functions in this area. DOT trains and inspects carriers and shippers of hazardous materials to ensure that they are in full compliance with regulatory guidelines.</p>

Agency/Center	Responsibility
Department of Energy (DOE)	Provides the framework for a comprehensive and balanced national energy plan through the coordination and administration of the energy functions of the Federal government. Its primary responsibilities in the hazardous materials arena involve radioactive waste generated by the nuclear weapons program or by nuclear reactors that supply energy. DOE provides assistance in the removal and storage of hazardous materials.
Department of Defense (DOD)	Responsible for maintaining personnel, equipment, and other resources for potential use in military conflict. DOD also conducts hazardous materials courses at five military installations, primarily for military personnel responsible for the handling and control of such substances. DOD laboratories and installations can be a source of expertise, equipment, and supplies for use in local chemical emergencies.
Department of Labor	The purpose of the Department of Labor is to foster, promote, and develop the welfare of the wage earners of the United States, to improve their working conditions, and to advance their opportunities for profitable employment in carrying out this mission.
Occupational Safety and Health Administration (OSHA)	Under the Department of Labor, OSHA is responsible for establishing rules and standards to ensure that occupational environments are safe for workers. As part of this function, OSHA regulates employee safety and health at hazardous waste operations, in work environments where hazardous materials are present (primarily chemical industries), or during emergency response to incidents involving hazardous materials.
Other sources of information and assistance	Other types of specialized assistance are available from governments, local industries, and from national organizations representing chemical manufacturers and transporters.

Agency/Center	Responsibility
Hazardous Materials Response Teams (HMRT)	An HMRT is a specialized emergency response team formed to provide the particular skills, knowledge, and technical equipment needed to handle hazardous materials incidents. The chemical industry was the first provider of these services because it manufactured, transported, and used the products involved.

Agency/Center	Responsibility
Regional Response Teams (RRT)	May be assembled to provide advice and support for transportation or fixed facility incidents that surpass the capability of State and local governments. The RRT reports to an on-scene coordinator who directs the response in keeping with the local incident commander. RRTs are composed of representatives from Federal agencies and a representative from each State within a Federal region.
Chemical Transportation Emergency Center (CHEMTREC)	Established by the Chemical Manufacturers Association in 1971 to provide information for responders to chemical or hazardous materials emergencies. CHEMTREC's operators can assist incident responders by providing information such as the physical properties of the chemical involved, appropriate protective clothing to be worn by response personnel, and general tactics to use with the various hazardous materials (e.g., certain hazardous materials-induced fires need to be extinguished with water, while others should be smothered or covered with a special type of foam). CHEMTREC will not, however, tell the incident commander how to manage the incident.
Chlorine Institute	Provide specific technical assistance for chlorine emergencies. CHLOREP, the Chlorine Emergency Plan, provides telephone instructions to on-scene personnel in the United States and Canada and, if necessary, can notify the nearest producer of chlorine and request that a trained team be dispatched.
National Agricultural Chemicals Association (NACA)	NACA has identified a group of specialists designated as the Pesticides Safety Team. The team provides advice for incidents involving pesticides and will dispatch a response team to the site if one is needed.
	Other groups that are available for assistance include local industries that use or generate hazardous materials. The following types of companies are likely to have the knowledge, equipment, or personnel to provide local-level assistance:
	<ul style="list-style-type: none"> ▶ Chemical companies often have the equipment and personnel to respond to chemical spills. ▶ Oil refining and storage facilities may be able to assist at a spill of oil or gasoline. ▶ Construction companies can provide heavy equipment and operators when needed. ▶ Transportation companies can provide detailed information on the materials they carry, assist in evacuation, and may have

trained personnel and specialized equipment.

- ▶ Pollution cleanup contractors have special equipment and trained personnel.
- ▶ Although a fee will be charged for the services provided, professional cleanup contractors are often the best (and quickest) source of advice and physical assistance at a spill.

Your local emergency operations plan should maintain a current list of contacts and telephone numbers for all potential sources of assistance. Compiling this information during an emergency can waste valuable time when the need for action is urgent.

LEARNING CHECK – WHAT HAVE YOU LEARNED ABOUT ANALYZING THE RISKS OF HAZARDS?

This activity is designed to assess your understanding of the information presented in this unit.

Directions: Answer the questions – use the Answer Key in Unit 9 to check your answers.

True or False

1. Developing an animal care annex is one of five steps in developing a community disaster plan.
2. A measure to reduce the impact of flooding includes constructing flood-protected farm access.
3. Hazardous materials cannot enter the human food supply through contaminated animals.
4. In a hazardous materials emergency, the State health department is likely to provide health scientists to assess the impact of the toxic release on the human population.
5. Chemical companies often have the equipment necessary to respond to chemical spills.
6. Native wildlife includes animals such as zebras, camels and ostriches.
7. Responsibilities of an Incident Command Center include monitoring and containing the spill.

Multiple Choice

8. Adding a distinctive smell to odorless liquid propane gas is which type of mitigation activity?
 - a. Reducing or limiting the amount of hazard manufactured
 - b. Modifying the basic qualities of a hazard
 - c. Modifying the rate or spatial distribution of the release of the hazard
 - d. Disseminating information
9. Determining dangers likely to affect your community based on the size and population of your community considers which one of the following factors?
 - a. Past history
 - b. Geographic characteristics
 - c. Community characteristics
 - d. Meteorological characteristics

10. In terms of animals in disasters, which one of the following factors should be considered as part of vulnerability analysis?
- a. Size and composition of animal-care industries
 - b. Hazardous materials transported through your community
 - c. Hazards associated with the geography of your area
 - d. Strategies to mitigate the effects of natural hazards

EXERCISE: WHAT ARE THE THREATS TO YOUR COMMUNITY?

The following is a list of possible hazards for your community. First, add to the list any others that might occur in your community. Next, examine each hazard using the information obtained from the State geologist, State public health department, nearest U.S. Geological Survey office, National Weather Service Office, or other appropriate source of information. Do the hazards have a high, medium, low or no likelihood of being a threat to your community? Put your answer in the column headed Likelihood. For example, if you live in Hawaii you would put “no” beside snow and ice storm. If you live near a river or on a floodplain, put high, medium, or low based on your conversation with the National Flood Insurance Program (NFIP) coordinator.

Next look at the column labeled Vulnerability. What is the vulnerability of your jurisdiction to this hazard? Given what you know about the vulnerability of your community, does the hazard present the threat of a disaster or just a routine emergency? Put an answer in the column.

In the final column provided, check those hazards that represent “worst threats” to your community. The “worst threats” are those hazards with threats that have high or medium (a) likelihood of happening, or (b) disaster vulnerability. These are the hazards on which you will want to concentrate first.

Compilation of possible hazards in your community

Possible Hazard	Likelihood (high, medium, low, no likelihood)	Vulnerability (threat of disaster or routine emergency)	Worst Threats
Attack (nuclear or conventional)			
Tornado			
Flood			
Hazardous material dumps/storage			
Radiological incident			
Urban fire			
Power shortage/failure			
Winter storm/Ice storm			
Air crash			
Water supply contamination			
Hurricane, tropical storm			
Earthquake			
Volcano			
Drought			
Chemical or biological warfare			
Highway and transport accidents			
Mud flow			
Dam failure			
Wildfire			
Avalanche, landslide			
Tsunami			
Civil disorder			
Subsidence			

Summary

In this unit you learned how to identify hazards likely to affect your community. You also learned some mitigation strategies for certain types of hazards, in terms of the safety and protection of animals. Response and recovery actions in terms of animals were discussed, e.g., how to safely transport animals. Finally, the responsibilities of an Incident Command Center and the roles of local, State, and Federal governments and other resources in a hazardous materials incident were addressed.