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Introduction to Emergency Response Planning

The Contexts of Emergency Response Planning

Starting Point

What You'll Learn in This Chapter

- The relationship of emergency response planning to emergency management
- The public policy context of emergency response planning
- The mission and organization of the local emergency management agency (LEMA)
- The differences among emergencies, disasters, and catastrophes
- The complementary role of government and business in emergency response planning

After Studying This Chapter, You'll Be Able To

- Distinguish an Emergency Operations Plan (EOP) from an Incident Action Plan (IAP)
- Evaluate the effect of community vulnerability on emergency response planning
- Argue that hazards issues should be on the local policy agenda
- Assess critical tasks for implementing hazard policy
- Build local resources into an emergency response planning system

Goals and Outcomes

- Establish planning goals for prevention, protection, mitigation, response, and recovery
- Evaluate the political process and use it to support emergency response planning
- Support the integration of government, business, and nongovernmental organization (NGO) assets into emergency response planning
- Evaluate the place of agency guidance and statutory mandates in local emergency response planning
- Assess the importance of an intergovernmental, regional, and public/private view of the emergency response planning process

1.1 Introduction

Emergency response planning is important and complex. We plan to ensure that government, households, and businesses are prepared for routine emergencies and community-wide disasters.

We develop emergency plans so we can reduce losses in terms of human casualties, property damage, and societal disruption. Emergency response *planning* is the first step in achieving community emergency *preparedness*. Preparedness provides the ability to marshal community and extracommunity resources to respond quickly and effectively when a disaster strikes. The path to preparedness includes choosing which hazards to plan for, understanding the community's vulnerabilities, creating teams to develop an **Emergency Operations Plan (EOP)**, and acquiring the resources needed to implement that plan. Those resources are trained personnel, facilities such as **emergency operations centers (EOCs)** from which to coordinate an emergency response, equipment such as radios to communicate among teams in different locations, and the money needed to pay for these resources. Finally, the emergency response organization needs to test and revise the EOP. The planning process is never complete because the threat environment changes and the tools to manage those threats change. A continuous planning process recognizes changes in old vulnerabilities and identifies new vulnerabilities. The planning process also monitors changes in knowledge and technology that affect the ways we are able to respond to incidents. The EOP is a snapshot of the planning process at a single point in time. It must evolve over time to remain useful.

As an emergency planner, you might lead or serve as a member of a planning team, so you must know the steps in the planning process. You don't need to be an expert on every issue that arises because you can call upon a wide range of specialists to help with specific tasks. These experts may be specialists in specific threats (e.g., hazardous materials—*hazmat*—technicians) or in analyzing community vulnerabilities. Or they may be specialists in **geographic information systems (GISs)** or in different types of response (e.g., evacuation transportation planners). The experts consulted and the composition of the planning team depend on your community's vulnerability profile.

Planning takes place in a variety of contexts. This is true whether you are planning for a community or a business. Three contexts are particularly important. The primary one is the *emergency management context*. The emergency management system defines the goals, structure, and strategy used to deal with extreme events that can inflict losses. The second is the *public policy context*. Successful emergency management requires financial resources. In addition, it also addresses regulations that influence people's behavior in ways that reduce risk. The expenditure of public money and the use of rules to control behavior fall within the purview of the public policy system. To achieve your goals, planners must learn to work within the limits of government and the public policy system. Finally, most planners work within a specific *jurisdictional context*. This is true whether the planner is working for an entire jurisdiction or for a single business. For each role, the local jurisdictional context defines the emergency management system and the public policy environment. It is important to understand each of these three contexts if you are to be effective.

1.2 The Emergency Management Context

According to Presidential Policy Directive 8 (PPD-8, Office of the President, 2011), communities need to be able to handle emergency tasks for five mission areas for all types of hazards. These mission areas are *prevention*, *protection*, *mitigation*, *response*, and *recovery*. Hazards can range from flooding to nuclear power plants to terrorism. Incidents such as these can require coordinating the efforts and resources of different levels of government with private organizations. Emergency planners are critical to the preparation of plans for all five mission areas for all types of hazards.

1.2.1 Emergencies, Disasters, and Catastrophes

An emergency planner must confront three different levels of threat that are defined by the scope of their impact. According to Quarantelli (2005), these are emergencies, disasters, and catastrophes. An **emergency** is a type of incident that occurs relatively frequently; usually causes only a few casualties, limited property damage, and minimal social disruption; and requires only local resources and **standard operating procedures (SOPs)** for a successful response (Perry & Lindell, 2007). Examples include house fires, vehicle accidents, medical crises, and small hazmat releases. Fire departments, **emergency medical services (EMS)** agencies, police departments, and public works departments respond to these events by using local resources, although they sometimes require assistance from an adjacent jurisdiction but not from state or federal government agencies.

A **disaster** is an incident that occurs rarely; it can cause many casualties, major property damage, and substantial social disruption. It also requires extracommunity resources from nearby communities and higher levels of government, and requires a significant degree of incident action planning for a successful emergency response. Major hurricanes can cause disasters through high wind, storm surge, inland flooding, and tornadoes. However, a hurricane is not a disaster when it is out at sea. It becomes a disaster when it directly affects people and property. Disasters interrupt the ability of major community systems to support reasonable conditions of life. This means that significant subsystems in a community can no longer support people's work, education, shopping, recreation, and other activities. For example, a disaster might cause a town's public health protections such as sewage treatment and drinking water systems to fail. The utility system might no longer be able to provide electricity. The hospital system might no longer be able to treat patients. Emergency planners must create alternate mechanisms that limit, or even prevent, the failure of this community infrastructure and restore it to an acceptable level of functioning. The distinctive feature of a disaster is that it disrupts only a single community. This allows resources from nearby communities and higher levels of government to support the affected community's response and recovery.

A **catastrophe** is an incident that occurs still more rarely; it can cause a very large number of casualties, extensive property damage, and overwhelming social disruption in multiple communities. It also impairs regional emergency response resources so severely that extensive resources are needed from higher levels of government, and requires substantial interorganizational coordination for a successful emergency response. In 2005, for example, Hurricane Katrina devastated large coastal areas of Louisiana, Mississippi, and Alabama. In this setting, small towns that might otherwise count on help from larger urban centers found that nearby communities were simply unable to extend support. The levels of damage and social disruption are much greater in catastrophes than in disasters because most buildings are severely damaged or destroyed. Plans for victim shelter and medical care within the community are rendered useless. Damage assessment is difficult because normal communications channels are disrupted and roads that have been destroyed or blocked with debris prevent access to the affected areas. Catastrophic incidents often devastate local emergency responders and their facilities such as police and fire stations. This destruction can prevent emergency responders from carrying out their assigned duties. The 2004 tsunami in Indonesia killed more than 90% of the medical personnel in several towns. Hurricane Andrew in 1992 seriously damaged or destroyed South Florida buildings housing police, fire, welfare, and medical workers. This severely reduced their ability to mobilize and respond. Catastrophes sharply interrupt community functions by simultaneous failure of lifeline infrastructures. They interrupt electric power, fuel, water, sewer, transportation, and telecommunication services. The effect is exacerbated because the failures are simultaneous and geographically extensive, so responders

must prioritize the restoration of critical services. Social life is simultaneously interrupted because places of employment, recreation, worship, and education are gone. Recovery from catastrophe requires that social institutions and activities must also be restored. Hurricane Hugo destroyed or heavily damaged more than 90% of the buildings on St. Croix. This took away not just physical protection but also the social functions that were tied to those places.

Emergency managers only need to engage in minimal planning for routine emergencies, such as vehicle accidents and house fires, because the responding fire, police, and EMS departments use SOPs for these events. This planning process is more about coordination within an agency, or at most among a few agencies, rather than community-wide emergency response planning. Emergency planners focus on disasters and catastrophes because large-scale, high-impact incidents require responses by many agencies within a community and coordination with other agencies from outside the community.

1.2.2 The Work of Emergency Management

The five mission areas—prevention, protection, mitigation, response, and recovery—overlap rather than take place in a strict time sequence. Prevention, protection, and mitigation overlap in time because they take place before disaster impact. Response activities generally take place during and immediately after impact, but recovery mostly takes place after impact.

In addition to being nonsequential, the mission areas are both indistinct and interdependent. They are indistinct because there isn't an absolute "beginning" and "end" to each mission area. Emergency responders can begin to mobilize if they are warned before impact, such as for an approaching hurricane. Recovery can begin in some parts of a community while emergency response operations continue in other areas. The five mission areas are interdependent because actions undertaken in one mission area affect the type and range of actions that are undertaken in other mission areas. For example, an effective mitigation program can reduce the demands for emergency response activities. Consequently, even if you focus primarily on planning for emergency response, you must understand all five mission areas. By examining each of these mission areas, emergency planners can get a better picture of the ways in which strategies and tactics for one mission area affect the demands of other mission areas.

It is important to recognize that some emergency management activities only need to be addressed occasionally whereas others should be addressed continually. Specifically, response and recovery activities are only needed when a disaster or catastrophe occurs. However, emergency managers conduct mitigation and preparedness activities even when a disaster is not imminent. Moreover, all five mission areas are based on **hazard exposure/vulnerability analysis** and **community capability analysis**. The hazard exposure/vulnerability analysis the community's HE and the vulnerability of its people and structures, whereas the community capability analysis assesses adequacy of the community's resources to manage its HE and vulnerability. The hazard exposure/vulnerability analysis identifies the hazards to which the community is exposed and assesses the community's physical and social vulnerability to potential disaster impacts. The community capability analysis assesses current community capabilities for resisting or responding to disasters by examining the trained personnel, equipment, materials, and facilities that community organizations have to implement each of the five mission areas.

Prevention activities, as defined by the Department of Homeland Security (DHS) are directed toward combatting an ongoing terrorist attack or neutralizing the threat of imminent attack against the United States (DHS, 2016a). Such prevention activities are different from broader counterterrorism activities such as monitoring terrorist networks throughout the world. Instead,

prevention seeks to prevent foreign terrorists from entering the country; undermine radicalization and recruitment; deny access to financial, material, and logistical support; and prevent attacks on trade, and travel systems (DHS, 2019). By contrast, **protection activities** focus on deterring threats, reducing vulnerabilities, or minimizing the consequences associated with an incident. These include activities such as border security, critical infrastructure protection, supply chain security, and protection of key leadership and special events (DHS, 2016b).

Mitigation activities are preimpact actions to reduce casualties, damage, and social disruption by limiting the magnitude of a hazard's impacts (DHS, 2016b). The aim of mitigation is to prevent disaster impacts by providing passive protection at the time of impact. For example, if houses in a floodplain have been raised above the base flood elevation, no one needs to take protective action when a flood is imminent. The potential human impact of extreme events can be altered by modifying either the hazardous event system or the human use system or both (Burton et al., 1993). These two systems can be modified by means of mitigation strategies as hazard source control, community protection works, land use practices, building construction practices, and building contents protection (FEMA, 1986).

Hazard source control intervenes at the point of hazard generation to reduce the probability or magnitude of an event. This strategy, which is similar to the prevention mission area, is possible with technological hazards such as explosives, toxic chemicals, and radioactive materials but not with natural hazards such as floods, hurricanes, or earthquakes. By contrast, *community protection works* reduce disaster impact by altering the hazard transmission process, especially by confining or diverting material flows to reduce the hazard exposure of target locations and populations. This strategy is similar to the protection mission area, but is mostly suitable for natural hazards. For example, the loss of life and property from floods can be reduced by dams or levees that confine the floodwater. One feature that is common to both hazard source control and most community protection works is that they are *collective* methods of hazard mitigation. That is, they are usually performed by government agencies—especially the federal government—to provide protection for a large number of properties.

Land use practices limit HE by limiting development in areas where there is a high level of HE. For example, communities can minimize flood impacts by dedicating floodplains to low intensity uses such as parks and ball fields. On the other hand, *building construction practices* limit physical vulnerability by building structures that resist hazard impact. For example, earthquake impacts can be reduced by ensuring that houses are bolted to their foundations so they don't slide off during earthquake shaking. Finally, *building contents protection* prevents furniture, equipment (e.g., furnaces, air conditioners, washers, and dryers), and other building contents from being damaged or destroyed. In many cases, but not all, appropriate building construction practices protect building contents at the same time as they protect the structure itself. For example, preventing wind damage to a structure will also prevent damage to its contents. However, seismic shaking can overturn building contents such as water heaters and refrigerators without damaging the building structure itself.

The choice of mitigation strategies depends on political and economic decisions about the costs and benefits of each strategy. Specific questions include who has control over the hazards, what degree of control is maintained, and what incentives there are for the maintenance of control. Finding answers to these questions requires knowledge of science, technology, and public policy. Ultimately, communities need to decide what is the right set of mitigation strategies rather than just picking one strategy.

Unlike the previous preimpact risk reduction activities that provide passive protection, emergency **preparedness activities** support an active response to an incident. Emergency

preparedness is needed to support an effective response to a threat that provides enough time to respond but not enough time to improvise an effective response. Some people believe that an EOP is emergency preparedness, but it is only one aspect of emergency preparedness. The major elements of an emergency preparedness program are:

- Developing an EOP that guides the activation and coordination of response organizations;
- Devising SOPs to guide emergency responders in the performance of their tasks;
- Acquiring needed facilities, equipment, and materials;
- Training personnel to implement the EOP and procedures;
- Conducting drills and exercises to test response effectiveness; and
- Conducting critiques to identify needed improvements to plans, procedures, facilities, equipment, and training.

Response activities are actions taken during an incident to stabilize the threat, minimize or avoid casualties, and protect property and the environment. Response begins with the detection of incident conditions and ends with the stabilization of the incident following disaster impact. Detection depends on the state of knowledge and technology for the hazard. In some communities, detection of a local tsunami may be no more technically sophisticated than recognition that long and strong earthquake shaking means tsunami waves are coming soon. For floods along the lower Mississippi River, extensive instrumentation is integrated into a model for forecasting the timing and magnitude of the flood crest. Stabilization means that the risk of loss of life and property is back to “normal” levels. This does not mean that all danger has passed; evacuees can be injured when they return to their homes and try to repair them. The first priority for emergency response is to protect both the emergency responders and the local population from an imminent threat. The second priority is to limit damage to property and the environment. Lindell and Perry (1992, 2007) summarized emergency response planning guidance in U.S. Nuclear Regulatory Commission (USNRC)/Federal Emergency Management Agency (FEMA) (1980/2019) and National Response Team (NRT) (1986/2001) as indicating that four fundamental emergency response functions are:

- Emergency assessment,
- Hazard operations,
- Personnel and population protection, and
- Incident management.

Emergency assessment consists of the procedures that guide the emergency response by means of diagnoses of past and present incident conditions and forecasts of future conditions. It also includes timely and accurate forecasts of the need for additional emergency response resources.

Hazard operations are expedient hazard mitigation actions that emergency personnel take during an incident to limit a hazard’s magnitude, scope, and duration of impact. **Personnel and population protection** refers to actions that protect people from a hazard such as sheltering, respiratory protection, personal protective equipment, and evacuation. Other personnel and population protection actions are search and rescue, transport, and hospital treatment of injured victims. **Incident management** consists of the activities by which the human and physical resources used to respond to the emergency are mobilized and directed to accomplish an emergency response organization’s objectives. This typology has been supported recently in research by Morss et al. (2022), which found that emergency managers perform three of these basic functions as hurricanes approach—emergency assessment (information gathering and interpretation), population protection (communication with members of the public and evacuation), and incident

management (communication, coordination, and advisement within their agency, with elected officials, and with local, regional, state, and federal partners; resource staging).

Recovery activities begin after hazard impact has been stabilized and seek to restore the community to an acceptable level of functioning. The most immediate objective of recovery activities is to restore the physical infrastructure of the community. This means electric power, fuel (e.g., natural gas pipelines), water, sewer, telecommunications, and transportation. Other critical infrastructure includes facilities such as fire stations, hospitals, and banks. Neighborhoods vary in the length of time they take to recover from a disaster if they differ in the amount of damage they have experienced. However, population segments such as ethnic groups can also vary in the length of time they take to recover from a disaster if they differ in the financial resources, such as savings and insurance, that they have for rebuilding their homes (Peacock et al., 2017). Consequently, it can be difficult to determine when the community as a whole has returned to an acceptable level of functioning.

Households need to rebuild their homes and regain employment. Similarly, businesses need to rebuild their facilities and resume operations. Government agencies can assist households and businesses by performing four disaster recovery functions—disaster assessment, short-term recovery, long-term reconstruction, and recovery management. The recovery mission area's *disaster assessment* function should be integrated with the emergency response mission area's emergency assessment function in identifying the disaster's physical impacts. *Short-term recovery* focuses on the immediate tasks of securing the impact area, housing victims, and establishing conditions under which households and businesses can begin the process of recovery. *Long-term reconstruction* actually implements the reconstruction of the disaster impact area and manages the disaster's psychological, demographic, economic, and political impacts that will be discussed in Chapter 4. Finally, *recovery management* monitors the performance of the disaster assessment, short-term recovery, and long-term reconstruction functions. It also ensures these functions are coordinated and provides the resources needed to accomplish them.

Reconstruction activities tend to be dominated by rebuilding major structures and by efforts to revitalize the community's economic system. Many residents want to rebuild the community exactly as it was before the disaster. Of course, this recreates the same HE and community vulnerability that existed before the disaster. By contrast, community leaders may view the reconstruction mission area as an opportunity to implement hazard mitigation measures. To manage these conflicting goals, the community should develop a **recovery operations plan (ROP)** before a disaster strikes, which is based on consensus about recovery goals and procedures and is integrated with the plans for mitigation and emergency response.

1.2.3 Distinguishing Emergency Preparedness, Emergency Operations Plans, and Incident Action Plans

Not only is an EOP different from emergency preparedness, it should also not be confused with an **incident action plan (IAP)**. An EOP is the product of emergency response planning that takes place before an incident. The EOP uses the community's hazard exposure/vulnerability analysis to establish a **concept of operations (CONOPS)**, which is the overall framework upon which the EOP is based and that guides the emergency response to all incidents. An EOP identifies the response functions that need to be performed before an incident occurs and identifies the organization that has primary responsibility for each of those functions. By contrast, an IAP is a plan produced in each operational period during an incident (typically every 12 or 24 hours) that uses continuing emergency assessments of incident conditions to establish the next operational period's response objectives and develop a plan of action for achieving those objectives. The plan of action

assigns tasks to response teams and allocates resources to support task performance. The IAP is disseminated to all relevant organizations to coordinate the performance of their designated tasks. At the end of each operational period, the IAP's incident objectives provide the criteria for evaluating the emergency response organization's performance and guide the formulation of the IAP for the next operational cycle.

EOPs and IAPs guide operational decisions when managing two kinds of incident demands—agent-generated and response-generated demands (Perry, 1991). **Agent-generated demands** arise from the need to take actions that ideally prevent, or at least reduce, hazard impacts on human health and safety, property, and the environment. These demands can be assessed by using the community hazard exposure/vulnerability analysis which, as noted in Section 1.2.2, is used to identify the likelihood of each hazard to which a community is exposed, as well as the community's physical and social vulnerability to the impacts of those hazards. In the case of a flood, some agent-generated demands are for (1) agencies to forecast the timing and level of the flood peak, (2) people to lay sandbags along the river to raise a levee above the projected flood level or to lay sandbags around individual structures, (3) people to move themselves and building contents to upper floors, (4) people to evacuate if they don't live in multistory structures, or (5) some combination of these and other actions. By contrast, **response-generated demands** are caused by the need for resources to respond to the agent-generated demands. These resources are trained personnel, facilities, equipment, and materials, as well as methods of coordination among organizations that do not routinely work together. To continue the example of a flood, the response-generated demands include emergency public information to provide updates on the flood forecast, a large number of people (including untrained volunteers) to lay sandbags, adequate supplies of sand and bags to raise levees, a warning system that can advise people if they need to evacuate, and boats to rescue any people who are trapped in their houses. These response-generated demands can be assessed by examining the community capability analysis to identify the organizations and resources that will be available to respond to an incident.

Major disasters elicit a spontaneous flow of people, material, and other resources to an incident scene, called **convergence**. For example, during the immediate aftermath of the 9/11 terrorist attacks in New York, people from all over the country rushed to the scene to help. Foreign governments offered to send search and rescue teams. Major disasters also produce **improvisation**, which is the implementation of unplanned emergency response actions that are needed when incident conditions deviate from the assumptions of the emergency response planning process. Improvisation during an incident can be adaptive if an organization successfully copes with an unanticipated demand. However, it can be problematic if the improvisation is not coordinated with other organizations. For example, two adjacent counties improvised separate evacuation plans during the 1979 Three Mile Island nuclear power plant accident (Chenault et al., 1980). Unfortunately, each county expected to use all four lanes of an interstate highway to evacuate its residents into the other county. This would have produced a major traffic jam if it had not been caught by the **state emergency management agency (SEMA)**—the state agency responsible for emergency management. Finally, **emergence** occurs when groups of volunteers form to meet disaster demands that are unmet and often unexpected (Dynes, 1974). For example, earthquake survivors often form emergent search and rescue groups to extricate victims in collapsed buildings. Similarly, an **emergent multiorganizational network (EMON)** forms as an improvised organizational structure for coordinating organizations if they have not previously worked together or established standardized methods of communication and coordination before an incident occurs. All of these response-generated demands can be resolved successfully if emergency planners are aware of their potential and establish coordinating mechanisms to resolve them. For example,

communities can avoid the problems of coordination with emergent search and rescue groups by establishing **community emergency response teams (CERTs)** and training them to respond to disaster impacts within their neighborhoods. These CERTs can coordinate with the **incident command post (ICP)**, which is a temporary facility established at the incident scene that directs the emergency response operations in the field.

Although EOPs are distinct from IAPs, the two must be linked. Integrating these functions decreases the chance that EOPs will:

- Fail to support emergency response operations,
- Be viewed by emergency response personnel as irrelevant, or
- Reside quietly on shelves, giving comfort only to the uninformed.

More generally, the emergency response planning process exists in a political arena that must accommodate elected and appointed officials. This political arena includes municipalities (towns and cities), as well as county, state, and federal governments. The political process often defines which hazards will be addressed in planning and how resources will be allocated to manage them. During emergency response operations, decisions to issue evacuation warnings and establish access control to evacuation zones are initially made on technical grounds. However, their actual implementation is strongly influenced by political officials. Any attempt to engage in emergency management without an awareness of, and responsiveness to, the political context is to invite failure.

FOR EXAMPLE

Hurricane Harvey

Late in August 2017, Hurricane Harvey made its first landfall on the Gulf Coast just east of Rockport, Texas. The National Hurricane Center placed Harvey as a Saffir–Simpson Category 4 storm with a wind speed of 132 mph (212 kilometers per hour—kph) at landfall. Although it soon decreased to Tropical Storm wind speed (46 mph/74 kph), it stalled over the coast, inundating southeast Texas with the heaviest rainfall ever produced by a tropical cyclone (over 60 inches/1.5 m) and producing economic losses only exceeded by Hurricane Katrina. Harvey evacuations lacked the drama seen just before Hurricane Rita, when millions of evacuees were caught in traffic jams. However, the limited evacuations before landfall left people in homes that later flooded. As a result, over 30,000 water rescues were needed to move people to safety.

SELF-CHECK

- Give an example of an emergency and explain how it differs from a disaster.
- Why do we say the emergency response planning process is never complete?
- What is hazard mitigation? Give an example of how this works for a natural hazard.
- What is the difference between emergency response planning and incident action planning?

1.3 The Public Policy Context

Emergency response planning takes place within a policy system that consists of multiple interacting governmental agencies. This policy system perspective is a device that is used to understand the distinct activities in the public policy process. Understanding the policy system allows us to

know which tasks are the responsibility of each level of government. This provides insights into the kinds of activities each level of government must perform to plan for and respond to disasters. The policy system provides limits as well as opportunities for policymakers.

The policy system is often described as a series of stages. Together, the stages outline the tasks involved in making and implementing policy. Dye (1995) groups these activities into four categories. These categories are policy formulation, adoption, implementation, and evaluation. **Policy formulation** is defined by the problem identification, data collection, analysis, and planning that is needed to identify policy options and gain the attention of decision makers. **Policy adoption** is the approval of one or more of the options by an authority. The authority might be a city council, county board of supervisors, or state legislature. In turn, that authority transforms the selected option into a law or policy. **Policy implementation** refers to the actual execution of the policy. This stage involves individual government agencies putting the policy into effect. Implementation also includes creating the rules by which the policy will be administered. Finally, **policy evaluation** involves assessing the policy's effectiveness. This helps authorities to adjust the policy if needed, or replace it if it has failed.

1.3.1 The Intergovernmental System

Formulating and implementing community policies for prevention, protection, mitigation, response, and recovery involves actors and processes at multiple governmental levels. Federal, state, county, and local governments can be involved in all five mission areas of the policy development process. The process can be simultaneous and also quite complex. First, all of the activities in the policy development process can occur at the same time within a single level of government. Second, governments or citizens at one level (city) may involve themselves in different stages at other levels (county, state, or federal). Keep in mind that no single level of government can control the entire process for all levels. The development of emergency management policy in the United States is very much a product of interactions among government levels.

A rational, consistent policy is created only if all levels of government work together. Although no level completely dominates emergency management policy, some levels carry primary responsibility for particular tasks. For example, the development of an EOP is a local government function. However, state and federal government agencies can provide technical guidance and financial support that assist local government in EOP development.

Emergency planners need to understand the role of citizens in the policy process before moving to the complexity of intergovernmental relations. Politicians often attach little importance to environmental hazards until a major disaster occurs. It is not surprising that in many areas of hazards policy, citizens play a small role in public policy (Stallings, 1995). One reason is that policies tend to be developed by experts in the field because policy advocates require specialized knowledge to be effective. However, technical experts are not always effective in promoting hazards policy. As an emergency planner, you can play an important role as a bridge between technical experts and elected authorities. You can do this by explaining how emergency management policies protect public health and safety, property, and the environment. You can also mobilize support from citizens' groups by explaining community hazard vulnerability and ways to manage it more effectively (Prater & Lindell, 2000).

1.3.2 Hazards Management Policy at the Local Government Level

Local governments are crucial to the adoption and implementation of environmental hazards policy. Although some states can make land use decisions and enact building codes, implementation

of these policies is usually delegated to local governments. Hazards policy may be created by either elected officials or by senior appointed officials. Most hazards policy implementation is carried out by local departments of land use planning (especially mitigation and recovery) and public safety (emergency preparedness and response). Despite the critical roles assigned to local governments, their performance has been spotty. Some local governments have strong, consistent, and well-implemented hazards policies. However, others appear to ignore the issue, even at the peril of their citizens. This lack of a consistent record is often due to systemic constraints.

Local government has far more constraints on its revenue sources than either the federal or state governments. Furthermore, local governments are closest to their citizens, so their budgets are subject to close public scrutiny. Emergency management requires spending money now for something that might only happen in the distant future. This makes it difficult to get support for programs that might not have any effect while the current elected officials are in office. Since the terrorist attacks of 9/11, the federal government has made much more money available for hazards but this money is not completely controlled by local officials. Not all communities are eligible to obtain such funding, and those that do receive it are subject to federal rules and regulations. Ultimately, most local governments only give a small portion of their own revenue base to emergency management. Municipalities organize emergency management in a wide variety of ways. Some communities locate this activity in a fire or police department but others have an independent **local emergency management agency (LEMA)**. A LEMA is a municipal or county organization that has been formed to support the jurisdiction's emergency management by engaging all of the relevant government agencies, **nongovernmental organizations (NGOs)**, and private sector organizations in a coordinated emergency planning effort. The diversity in the location of local emergency management poses considerable difficulty to a SEMA attempting to coordinate local efforts across all disasters. The challenge to the federal government is, of course, even greater when trying to work with the 50 states, 5 territories, 567 Native American tribes, and over 3,000 counties.

1.3.3 Adopting and Implementing Environmental Hazards Policy

In addition to the lack of money and the diverse structures of local systems, there are three additional challenges for emergency planners. To successfully formulate, adopt, and implement effective responses to environmental hazards, a local government must:

- Be aware a threat exists and consider it a community priority,
- Believe that there are effective methods of coping with the threat, and
- Develop a politically and economically feasible policy to manage the hazard.

Specifically, both citizens and officials must be aware that hazards exist. In addition, they must believe that there is a risk of significant losses within their lifetimes (for citizens) or terms of office (for elected officials). Unless both conditions are met, communities assign very low priority to emergency management. Rossi and his colleagues (1982) questioned people influential in state and local politics. They found that problems associated with five natural hazards (flooding, fire, hurricanes, tornadoes, and earthquakes) were near the bottom in importance on a list of 18 problems confronting state and local governments. These findings have been confirmed by other studies showing that political influentials do not consider natural hazards to be a pressing problem.

Agency staff may have different risk perceptions from elected officials and the public. Not knowing the effects of the hazard or when it will occur plays a major role in these different perceptions. Moreover, such perceptions vary with one's relationship to the hazard. Public safety officials may

take seriously a potential threat that could injure many community residents. Citizens might take such a threat much less seriously unless they feel they are at risk.

In some cases, citizen interest groups are more concerned about a hazard than local officials. These groups often work to place issues on the local political agenda (Prater & Lindell, 2000). Members of the public who are technical experts may also try to generate a political response to a hazard. For example, a local engineering professor who understands the effects of earthquakes on unreinforced masonry (e.g., brick) structures might seek stronger building codes. Grassroots pressure for adoption of a hazards policy may also come from citizens who understand and are concerned about local chemical plants. Emergency planners can work with these actors as partners in promoting emergency management policies.

To formulate hazard policies, local officials must believe that there are effective ways for coping with the hazards. Local emergency management can include a wide variety of the activities that were addressed in Section 1.2.2. These range from working with hazmat facilities to improve hazard source control to advising resident of seismic zones to engage in contents protection by securing water heaters to walls. It is essential that emergency management advocates agree upon at least one action as an effective means of mitigation or preparedness. When there are severe (and, equally important, well-publicized) disagreements among experts regarding the effectiveness of strategies for coping with a threat, elected officials often hesitate to act. In the absence of a consensus among experts, the prospective policy becomes the subject of political conflict. Then it is subjected to the same forces as other political and social value questions. During the Cold War, the question of civil defense measures assumed a political dimension. There was a federal Crisis Relocation Plan that proposed massive evacuations of risk area counties to host area counties where evacuees would be provided with temporary shelter. However, there was disagreement among experts regarding the threat and the effectiveness of the proposed protective action. The debate went on for decades and the policy ultimately failed when many counties decided to end their participation in the program.

Finally, for a local government to act, a politically feasible program must be available. That is, it must be consistent, or at least not conflict, with established elites or community values. Moreover, the policy must be economically feasible. The importance of having an acceptable proposal on which to act should not be underestimated. Crew (1992) argues that elected bodies rarely write their own legislative bills but, rather, review the draft bills submitted by others. Politicians will adopt a bill if the advocates convince them the premise is sound and they will not incur serious political vulnerabilities. If there are minor problems, local officials might “fine-tune” a proposal into a fully acceptable form. If you are seeking political action, you must present the proposal to the decision-making body in a form that identifies the hazard, explains why it is a threat, and proposes a way to significantly reduce the threat at an acceptable cost. The proposal will be extremely persuasive if the presentation includes representatives from other organizations supporting the policy. For example, one **local emergency planning committee (LEPC)** got the funding it requested for a new program by having representatives from more than 20 county and city organizations attend the meetings of the finance subcommittee and the full county council. Neither the finance subcommittee nor the county council had ever had so many organizations turn out in support of a proposed program.

Legal obligations and liabilities form an excellent argument that emergency management policies be adopted and implemented. Obligations vary for the federal government, the states, and localities. Governments and emergency managers have some immunity from legal liability under state and federal law. However, they can be held legally liable for incompetently performing their duties or for failure to plan for obvious major hazards. Explaining that policymakers may be held legally liable for failures to act can be a powerful incentive for program approval.

In summary, hazard management policies come before local government via two primary avenues. First, broad public safety responsibilities may induce local authorities to place hazard management policies on their agenda. Second, interest or constituent (professional) groups can lobby to have public officials address hazards issues. Other routes are possible as well. Sometimes, legal obligations to address hazards attract elected officials' attention. In still other cases, a community that accepts grant funds from the federal government must use the money for specific hazards policies or activities. In practice, local officials, professional groups, and citizens interact to create and sustain emergency management policies. These policies sometimes must be established before an emergency response planning process can proceed. Emergency planners, their LEMAs, and their LEPCs can suggest items for the political agenda in some communities. In addition, they are sometimes called on to serve as expert witnesses when communities are considering proposed policies. In some cases, emergency planners serve as a point of contact for citizens or advocacy groups who support the development of environmental hazard management policies. Emergency planners who understand the policy system can find many ways to influence the political process.

1.3.4 Local Agency Involvement in Hazards Policy Implementation

Emergency management and public safety (fire, police, and EMS) departments rarely play a major direct role in policy formation. They become involved when they identify new threats or gaps in existing policy. However, emergency planners have the primary responsibility for interpreting and implementing hazard management policies. Consequently, in addition to developing and updating the jurisdiction's EOP, emergency planners also need to identify and acquire the resources that will be needed to implement that EOP.

The role of public safety departments in emergency management is to focus on policy implementation. They routinely prevent, protect, mitigate, respond to, and recover from acute threats. However, other departments are less likely to recognize the threats from environmental hazards. Thus, emergency planners must also work with departments such as social services, housing, transportation, and information technology to engage them in emergency response planning. In addition, there are departments that can make contributions to mitigation and recovery planning. These include land use planning, building regulation, economic development, housing, and public utilities. The terrorist attacks of 9/11 had a major impact on the involvement of these other agencies in emergency management. These attacks demonstrated the potential danger to lifelines such as electric power, fuel (e.g., natural gas pipelines), water, sewer, telecommunications, and transportation. When these lifelines are disrupted, there can be terrible consequences for the community. As a result, many communities have developed emergency response planning processes that include a much broader range of government agencies.

Most local governments need federal resource allocations to maintain or expand their emergency management capabilities. The federal drive to enhance national preparedness for terrorist attacks has produced significant resources for communities. Since 2002, the federal programs such as the Urban Area Security Initiative and Emergency Management Performance Grants (EMPGs) have awarded billions of dollars to local communities. Other forms of assistance have provided access to equipment, information systems, and highly specialized response teams and recovery specialists. Although this financial and technical support is what local officials have been requesting for decades, there is a price. Acceptance of funds requires adopting the **National Incident Management System (NIMS)**. NIMS is the DHS's standardized approach to incident management that defines an incident command structure with resource naming and planning protocols. Similarly, communities are required to adapt local plans to other federal guidance such as Area

Contingency Plans for oil spills and radiological emergency response plans for radiological releases. Federal agencies have provided many constructive ideas for addressing hazards that local communities will only face infrequently. However, the federal guidance (in some cases) and requirements (in other cases) can be problematic because they were developed at different times by different agencies and have been evolving only gradually toward consistency with each other. Moreover, they have been devised at a distance from the jurisdictions who need to implement them and tend to promote a “one-size-fits-all” approach to planning. Local emergency planners have long been wary of “model plans” on the grounds that each community has distinctive characteristics that it must account for in its EOP. In this environment, you must carefully balance the benefits of federal support with the potential loss of local autonomy. Local governments can maximize their benefits in this situation by recognizing the differences between federal *requirements* (practices that are required to receive federal funding) and federal *guidance* (practices that are recommended for effective emergency response). These can be used as valuable inputs to the local emergency response planning process. For example, some federal and state agencies have produced handbooks that provide valuable suggestions about LEPC organization and activities. These can build relationships among emergency planners and responders, as well as with other government agencies, businesses, and NGOs in the community.

FOR EXAMPLE

Oakland, California, Seismic Safety

Unreinforced masonry (URM) buildings have a very high rate of collapse during earthquakes. Simple brick and concrete block buildings are not flexible, so even small shocks can cause them to collapse. For years, officials in Oakland were aware of their earthquake risk and the high proportion of their buildings that were URM construction. In 1974, the problem was mentioned explicitly in the Oakland Comprehensive Plan. It was not until 1993, however, that Oakland finally passed an effective URM ordinance. The politics whirled for nearly 20 years, through damaging earthquakes, pressure from the state to pass an ordinance, and many years of watching surrounding communities pass their own ordinances.

SELF-CHECK

- What is policy evaluation and why is it important?
- What are some of the roles citizens play in the policy process?
- Why is it difficult to get local governments to adopt and implement hazard policies?
- Through what routes or initiatives do hazard policies come to local government?

1.4 The Local Jurisdictional Context

Tip O’Neil, longtime Speaker of the U.S. House of Representatives, is reputed to have said “all politics is local.” The same principle applies to disasters; emergency response planning is a *local* endeavor. Of course, county, state, and federal governments also engage in these activities because they have an important role to play in supporting local efforts. However, most hazards have a critical geographic dimension that is tied to their management. In any large event, external support (particularly state and federal) of many forms is critical to a local jurisdiction’s response. This is

especially the case in a catastrophe, when there is widespread destruction that causes many casualties and severely impairs local emergency response assets.

There is a time lag between hazard impact and the arrival of external resources. The National Response Framework informs communities that they must plan to operate without help from the federal government for 72 hours. However, there are cases in which federal and state resources can be pre-staged to locations near a potential disaster site. This is done for incidents that have ample forewarning, such as large hurricanes. However, time is still required to deploy these resources. When external support does arrive, the response proceeds most efficiently and effectively if there is a strong local organizational structure for emergency response. The recommended structure for emergency response operations is the **Incident Command System (ICS)**, which is a standardized system for the management of incident response by an **Incident Commander**, who has the authority to determine which tasks will be performed and how resources will be allocated to those tasks. The Incident Commander directs emergency responders who are organized into functional sections that are staffed as needed. The ICS organization at the incident scene should be supported by a well-equipped EOC. Local responders—through planning, training, exercising, and incident experience—know their local terrain best. They also know the local vulnerabilities and capabilities best. Thus, local personnel will be best able to identify problems, set priorities, and direct the timely and effective use of external resources.

Still another issue reinforces the emphasis on local government. An emergency response is significantly enhanced if a disaster's impact has been reduced by mitigation measures that were implemented before it struck. For example, hurricane evacuation planning is simpler if fewer people need to be evacuated from the coast because land use plans have limited housing density and building codes have required houses to be elevated above the base flood elevation.

Even if all disasters are local, the planning process is often better if it involves regional coordination. For example, Arizona's Salt River Valley is a metropolitan area with 26 cities and towns surrounded by desert and Phoenix at its center. These communities are linked by location, economics, public interest, and many other features of life. What happens to one community affects others. Even communities that are not embedded in such large urban networks should engage in regionally coordinated planning. This regionalization is not merely bureaucratic expansion. It means sharing skilled personnel and material resources during emergency response. The first step in regionalization is a regional hazard exposure/vulnerability analysis. Then, regional capabilities need to be identified. From this point, emergency planners can begin to develop a set of coordinated EOPs. In the Phoenix metropolitan area, all 26 fire and police departments are linked by a **mutual aid agreement (MAA)** or **memorandum of understanding (MOU)**. An MAA is a written document that identifies the resources that each jurisdiction promises to provide to the other when needed. An MOU is a document that states a general, nonbinding agreement between parties, detailing common goals and intentions. The fire departments in the Phoenix area have supplemented MAAs with **automatic aid agreements (AAAs)** among adjacent jurisdictions. Automatic aid is negotiated in advance and permits agreeing fire departments to respond to other jurisdictions as the need arises. Thus, a fire Incident Commander in Phoenix who is confronted with a need to immediately identify a potential biological agent can call the Phoenix dispatch center and be sent the Tempe Fire Department mobile laboratory at any time. These resource-sharing agreements are not limited to first responders. They can be established for a variety of jurisdictional needs related to any department. These departments include public works, information technology, traffic, or transit. MAAs are especially important in allowing agencies to effectively share critical pieces of equipment that are expensive but rarely used.

1.4.1 The Local Structure for Emergency Response Planning

In recent decades, there has been a movement to relocate emergency management responsibilities from police and fire departments to separate LEMAs, especially in large communities. These LEMAs receive technical guidance and financial support from their SEMAs and FEMA. Historically, there have been many local organizations charged with emergency response planning and management, but they have had highly variable success. In the 1950s and 1960s, a civil defense office was usually staffed by a single person who often had few qualifications beyond military experience. Over time, hazards have grown more complex—with a wider range of hazmat produced and stored in the community, as well as transported through it. In addition, there has been increasing occupancy of areas with high levels of HE to floods, hurricanes, and earthquakes. The technology for dealing with these technological and natural hazards has introduced complexity that requires special knowledge by those who plan for and respond to disasters. Because fire and police departments have special knowledge and equipment for responding to routine emergencies, they have often been the homes for emergency response planning. In many cases, the size of the community and the nature of its HE increased the scope of emergency response planning. Thus, larger communities exposed to major hazards hired full-time specialized hazards personnel into LEMAs. Federal mandates, such as the Superfund Amendments and Reauthorization Act (SARA Title III), required the creation of LEPCs and **State Emergency Response Commissions (SERCs)**. LEPCs, which are usually county-level organizations, are responsible for developing plans for toxic chemical emergency response. They do this by working with a wide range of city and county departments, NGOs, and hazmat facility staff. The SERC oversees such planning statewide. Other legislation such as the Clean Air Act Amendments required the development of local risk management plans. LEPCs and SERCs work with LEMAs and are not an alternative to them. Indeed, it is common for LEMA personnel to serve in key positions on LEPCs and for SEMA personnel to serve in key positions on SERCs.

These federal regulations, together with highly publicized major disasters, have created increased levels of hazard awareness and increased federal funding. These conditions have encouraged the development of LEMAs, which may be as small as a single part-time emergency manager (in some cases, a volunteer) or as large as a full department with a staff of emergency planners and administrative staff (Lindell et al., 2002). Whatever its size or administrative location, the LEMA serves as the center of a jurisdiction's emergency management activities. LEMAs are planning centers concerned with developing EOPs for emergency response and supporting plans for prevention, protection, mitigation, and recovery. Although their main role is planning, they also provide technical assistance to other departments as well as staffing for the EOC during its activation. Before a disaster strikes, emergency planners are responsible for:

- Monitoring the community's HE and vulnerability,
- Monitoring technological changes that affect vulnerability and response,
- Sustaining the emergency response planning process,
- Maintaining the EOP,
- Monitoring internal and external resource availability,
- Overseeing regional involvement in MAAs and MOUs,
- Ensuring that training for emergency responders is scheduled and completed, and
- Scheduling exercises and critiques to ensure acceptable levels of emergency response preparedness.

During emergency response, LEMAs are primarily concerned with the collection and dissemination of emergency-relevant information and resources. They rarely serve as first-line responders

at incident scenes. Instead, their emergency role is typically executed in the jurisdictional EOC. Within the EOC, LEMA personnel:

- Coordinate the efforts of first responders in fire, police, and EMS;
- Support the incident scene(s) with accurate information and resources;
- Receive and collate damage assessment data;
- Locate resources that can be requested from nearby jurisdictions, NGOs, the private sector, and higher levels of government;
- Maintain records of incident conditions and incident response actions;
- Oversee dissemination of emergency public information;
- Inform local elected and administrative leaders of incident status; and
- Monitor progress in meeting incident and response demands.

After a disaster, the LEMA often takes a lead local role in conducting critiques of the emergency response that identify required changes in plans, procedures, staffing, and training. In addition, LEMA staff work with other government agencies, as well as NGOs and private sector organizations, to coordinate recovery planning and operations. This task usually requires much intergovernmental collaboration and joint efforts with the departments of land use planning and building construction as well as with the business community. The LEMA provides assistance in setting goals to shape the community's future. The LEMA must assess the extent of the damage and its implications for the range of hazards the community faces. The community needs to decide if preimpact mitigation is better than repairing the damaged structures and, ideally, engaging in mitigation during reconstruction. These decisions require that emergency planners work with land use planners and others to develop the ROP. The ROP should define the process by which the options for recovery are developed and recommendations are brought before elected and appointed officials, business leaders, and citizens. This process should produce agreement on a vision for community recovery. It should also produce agreement on the strategy and tactics for achieving that vision. The next step is the creation of a schedule for the recovery process that identifies short- and long-term projects. It also identifies the resources needed and the process for maintaining oversight of community recovery.

Emergency planners need to identify and integrate the emergency plans of all the agencies in their jurisdictions. In addition to the jurisdiction's EOP, these include the **Continuity of Operations (COO) Plan** and **Continuity of Government (COG) Plan**. The COO Plan documents the measures that will ensure that all of the jurisdiction's agencies can continue to perform their essential functions during and after a disaster. The COG Plan documents the measures that will ensure each of the jurisdiction's governmental branches—executive, legislative, and judicial—can perform its essential functions during and after a disaster.

County LEMAs must also facilitate the integration of the EOPs of cities and towns within their county. Emergency planners also need to coordinate with organizations as diverse as school districts and utility companies and, especially, with the LEPC in developing site-specific emergency response plans for toxic chemical facilities. Finally, emergency planners might assist in the development of regional plans that are part of the Urban Area Security Initiative or State Homeland Security Program, both of which are funded by the Homeland Security Grant Program. Such plans and procedures should reflect an overall community vision. Unfortunately, it is not uncommon for them to be poorly coordinated and cross-referenced. Consequently, it is important to identify these diverse plans and integrate them so they can be implemented effectively in a disaster. Ideally, emergency planners will help other departments and organizations develop their individual emergency plans to make them more compatible with the jurisdiction's other plans.

In summary, LEMAs face many challenges in coordinating emergency response planning within their jurisdictions. One challenge is that they must address all emergency management mission areas for all types of hazards. In addition, there is variety in the plans themselves and processes that generate them. Moreover, there are limited resources available to local governments, and there is typically low importance attributed to hazard policy by local leaders. Finally, the emergency management system is characterized by a sharing of responsibilities among different levels of government. SEMAs are essential for coordination between the federal agencies and local governments. In addition, state governments must be active in the formulation of policy rather than merely passing this function on to local jurisdictions. The federal government, through DHS and FEMA, assists state and local governments in many ways. The most obvious is by providing funding such as EMPGs. The second is by providing planning guidance such as the *Comprehensive Preparedness Guide (CPG) 101* (FEMA, 2025). The third is by using specialized equipment and technology (e.g., severe storm tracking by the National Weather Service Storm Prediction Center) to provide hazard assessments and hazard warnings. The fourth is by providing specialized personnel such as the Regional Response Teams operating within the National Oil and Hazardous Substances Pollution Contingency Plan (the National Contingency Plan or NCP). The LEMA is certainly a major figure in achieving local emergency preparedness. However, effective emergency management requires the cooperative efforts of all levels of government, NGOs, and the private sector.

1.4.2 Businesses and Emergency Response Planning

Disasters do not spare businesses, many of which are damaged and may have to close temporarily or even permanently. FEMA (1998) estimated that more than 40% of disaster-damaged businesses never reopen. Of those that are able to reopen, nearly one-third fail within two years. Even when businesses only need to close temporarily, they lose market share. In turn, not only do those businesses suffer but the local economy also suffers. Employees lose their incomes, and customers may find themselves traveling longer distances for goods and services that were once available nearby. Businesses suffer because they rely on business-to-business sales or on other businesses to attract customers. Finally, local government suffers a loss of sales and property tax revenues at the same time that it must incur the cost of removing debris at damaged businesses.

There are two reasons why businesses should be involved in emergency preparedness. Government and business depend on each other during the response and recovery periods because each has special equipment and skills that can support community emergency management strategies. Businesses themselves also need to be prepared so they will suffer less damage when disasters strike. In turn, businesses that can continue operations after disasters can contribute to the local economy for a more effective community recovery.

Despite their potential for damage or destruction, many businesses are unprepared for disasters. Only 31% of the businesses in Drabek's (1994) survey of 185 tourist-oriented firms had adequate levels of evacuation preparedness. Mileti et al. (1993) found that fewer than half of the businesses in the San Francisco Bay Area had developed plans, trained employees, and conducted drills despite this area's experience in the Loma Prieta earthquake only a few years earlier. There were similarly low levels of business preparedness in Memphis and Des Moines (Dahlhamer & D'Souza, 1997).

The size of the business predicts the efforts it will make to prepare. Larger businesses are more likely to have the specialists who can conduct an extensive planning process. If a business has a lot of experience with a particular hazard, it will also be more likely to plan (Webb et al., 2000). Other factors such as business age, scope (local versus national), and business type can be positive factors in planning behavior. FEMA recognized the importance of business emergency response

planning by developing a variety of resources that can be found at www.ready.gov/business. This guidance outlines a planning process that identifies critical corporate emergency management functions. It provides information about a variety of hazards and lists sources to contact for further information. LEMAs can promote business planning by helping businesses to assess the potential for crippling disaster impacts. They can also help businesses in constructing their own incident response plans. The federal government is able to reach very large businesses, but LEMAs have a key role in reaching small businesses. Even the smallest LEMAs should develop business liaison programs to promote business emergency response planning. These programs need not be extensive. They should, however, promote awareness of local hazards and send the message that planning can minimize disruptions. In large jurisdictions, it is common for LEMAs to share emergency response planning expertise with local businesses.

1.4.3 Connecting the Dots: A Picture of the Local Emergency Response Planning Process

The local emergency management system is multifaceted. This chapter has discussed the structure and responsibilities of the organizations that play a role in the local system. Figure 1.1 presents a flow chart showing an overview of the elements of such a system. The flow chart shows how the tasks and tools for emergency response planning fit together. The chart is not intended to capture every detail mentioned in this chapter. Instead, it summarizes the key actions and processes in the local emergency management system. It is important to remember that emergency

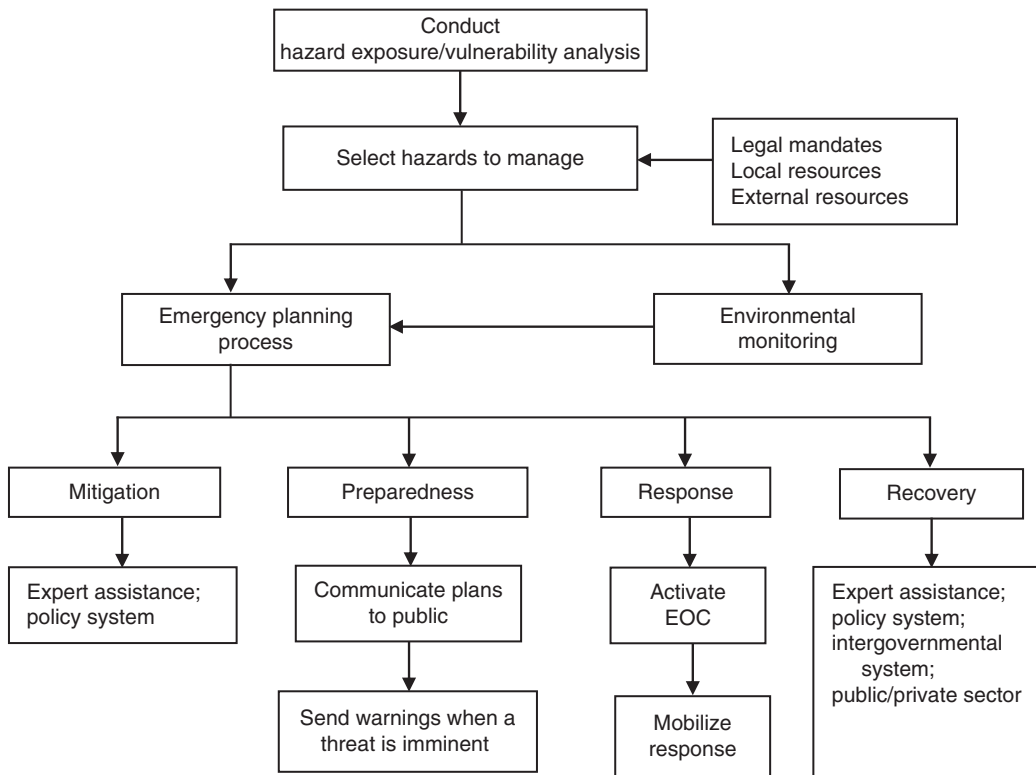


Figure 1.1 A local emergency response planning process.

response planning drives all the tasks of emergency management but must be responsive to external system demands.

The process of emergency response planning begins with a hazard exposure/vulnerability analysis, which DHS (2018) now calls a Threat and Hazard Identification and Risk Assessment (THIRA). LEMAs that follow DHS's hazard exposure/vulnerability analysis process identify the hazards to which the jurisdiction is exposed, estimate the likelihood of their occurrence, identify the geographic areas that would be affected, and document the vulnerability of people and property in those areas. It is an excellent idea for emergency managers to obtain the support of special experts when conducting a hazard exposure/vulnerability analysis, especially GIS analysts in the land use planning department. However, you can begin the process by identifying your community's natural and technological hazards.

- Is there a nearby river, ocean, earthquake fault, gasoline pipeline, rail line, major highway, or hazardous materials facility?
- What is the history of disasters for your community?
- Are there earthquakes, seasonal floods, or tornadoes?
- Has there been land subsidence, landslides, pipeline accidents, or transportation incidents generating release of dangerous substances?

These questions emphasize that hazard exposure/vulnerability analysis is intended to be a comprehensive, all-hazards examination. However, it is not a static activity because hazards are not static. In some cases, hazards change over time, as is the case for the increasing incidence of severe wildfires in the western United States. In other cases, it is information about the hazard that changes. This was the case for the threat of Cascadia Subduction Zone earthquakes along the Pacific Coast, which has only been recognized in recent decades. To ensure that your jurisdiction will be capable of responding effectively to the changes in the threat environment, your LEMA should periodically review and update its hazard exposure/vulnerability analysis.

At the next step, you can begin to decide which hazards require active management by examining both the probability and consequences of each hazard identified in the previous step. The relevant probability is often considered to be the chance that an incident will occur in a time interval such as the next 5–10 years. As will be discussed in Chapter 4, consequences are usually estimated in terms of physical impacts (e.g., casualties and property damage) and social impacts (psychosocial, demographic, economic, and political disruption). Those consequences are determined by the size of the impact area and the human, agricultural, and structural vulnerabilities in the impact area. Jurisdictions typically select all high-probability hazards as emergency response planning targets. The exception to this is if the projected consequences of a high-probability incident are minimal. Low-probability threats that are coupled with low levels of negative consequences are the routine emergencies that can be handled by fire, police, and EMS SOPs. Threats with a low probability, but severe negative consequences, are also usually planning targets. For example, the probability of a volcanic eruption in the Pacific Northwest is usually low at any given year. However, a community should be prepared if it is located in a valley that could be inundated by a lahar (mudflow) after an eruption. The process of deciding which threats the LEMA will actively manage is partly based on technical data from staff, consultants, and LEPCs, as well as from federal agencies such as the U.S. Geological Survey or National Weather Service.

In some cases, the selection of hazards for active management is determined by legal requirements. U.S. Nuclear Regulatory Commission (USNRC) regulations require off-site EOPs for nuclear power plants. The 1990 Clean Air Act Amendments require risk management plans for hazardous materials facilities that handle more than a threshold planning quantity of extremely hazardous substances. The decision to manage a threat is also influenced by local capacity and commitment. Local capacity is a function of the LEMA's size and internal expertise, as well as the

resources available in other local agencies. It is also influenced by the LEMA's ability to access external resources from the state and federal government, as well as NGOs and the private sector. Finally, all decisions about emergency management are subject to local political priorities. Most specifically, this is the level of funding for emergency response planning and preparedness that local elected officials are willing to provide.

Once emergency planners have identified a specific hazard (e.g., a hurricane) and the specific event magnitude(s) that the community will use as a planning basis (e.g., hurricane categories 1–5), they can identify the locations that are exposed to each level of hazard impact. For example, the National Hurricane Center's Sea, Lake, and Overland Surge from Hurricanes (SLOSH) computer program (www.nhc.noaa.gov/nationalsurge/) produces output that is used to identify the geographical areas within a coastal jurisdiction that are expected to be inundated by storm surges from each hurricane category. Once each risk area has been identified, emergency planners can use GIS to conduct a vulnerability analysis that identifies the structures and people that are located in that risk area. For example, one part of the risk area might be filled with single-story residences that will need a detailed evacuation plan, whereas another part of that risk area is a regional park that only needs to be closed when a hurricane approaches.

After the initial hazard exposure/vulnerability analysis is completed, two further processes begin—the first of which is planning for the threat. Every community faces a number of threats, so emergency planners try to address each one as thoroughly as possible. In practice, because the nature and consequences of each hazard differ, the planning process must address these differences when devising emergency management strategies. For example, a jurisdiction could consider implementing land use and building construction measures to reduce hazard vulnerability. This usually involves working with experts in other departments to advocate for the community to adopt those measures. For example, a community might prevent development within floodplains by purchasing property and preserving it as open space. Special zoning areas might also be established to avoid building schools, hospitals, and nursing homes on hillsides subject to landslides. Other mitigation measures are outside the role of local governments. For example, breach-proof packaging requirement for hazmat transportation is a federal task because that is the only level of government that can regulate interstate commerce.

Emergency planners can also increase emergency response preparedness by establishing *capability targets* that define the time by which the LEMA expects to achieve specific, measurable emergency response objectives. For example, if the hazard exposure/vulnerability analysis has shown that many streets will be filled with debris after a hurricane, they will need to be cleared before evacuees can return to their homes. If the target is to clear all major arterials within 48 hours, emergency planners will need to identify the resources available for this task (i.e., the personnel and equipment) and the rate at which they can clear the debris to see if the capability target can be achieved. If not, either the resources need to be increased or the target needs to be modified.

The other process is environmental monitoring to identify changes in hazards that are already known and identify new hazards that have not previously been addressed. The purpose of hazard monitoring is either to forecast a potential disaster or detect and monitor an imminent threat. Depending on the technology involved, these data may be generated locally or obtained from county, state, or federal agencies that have special expertise. For example, local jurisdictions lack the technology to track approaching hurricanes. Consequently, they obtain information from the National Hurricane Center through the HURREVAC website (www.hurrevac.com), among other sources. Thus, LEMA personnel in the EOC need to interpret the implications of those hurricane data for their jurisdiction's emergency response.

Emergency preparedness activities are intended to reduce harm from threats that can't be eliminated by hazard mitigation measures. The emergency response preparedness process must

anticipate the emergency response actions because emergency preparedness provides the resources that response agencies need to implement those emergency response actions. For example, people can often be protected by evacuating to a safer location. However, evacuation is most successful when a threat can be forecast with enough time to evacuate the threatened population before hazard impact. This is usually the case for U.S. hurricanes because the National Hurricane Center detects storms and provides forecasts to state and local emergency managers so they can issue timely evacuation warnings. However, LEMAs must do much more than issue evacuation warnings. As will be discussed in Chapter 9, most urban jurisdictions need to prepare in advance to use *evacuation traffic management* strategies such as contraflow. This strategy can significantly increase highway capacity by converting highway lanes that are normally used to travel toward the coast for use by evacuees traveling away from the coast (Lindell et al., 2019). However, contraflow takes transportation agencies throughout the region many months to plan and many hours of effort to implement as a hurricane approaches. These jurisdictions also need to prepare in advance for *evacuation transportation support* strategies that can provide buses for people who lack their own cars, ambulances for residents of nursing homes and hospitals, and gasoline tank trucks en route for cars that run out of gas.

Emergency planners play multiple roles in the emergency response process, even though they don't often go to the incident scene. During an emergency response, LEMA staff typically operate the local EOC because this is the focal point for collecting and collating information, as well as coordinating requests for resources from community businesses, neighboring jurisdictions, and higher levels of government. In addition, it is the location for developing an emergency response strategy when the entire jurisdiction is the incident scene, as in an epidemic. The local government's emergency response deploys community resources according to the provisions of an IAP that is formulated within the context of the community's EOP. When necessary, the EOC activates MAAs that have been established within the EOP or requests help from other states through the Emergency Management Assistance Compact (EMAC—<https://emacweb.org>) or from the federal government through the National Response Framework, as implemented through NIMS.

The EOP should address some basic issues of disaster recovery to ensure coordination between the emergency response and the disaster recovery mission areas. In turn, the recovery planning process should consider the opportunities for hazard mitigation. These mitigation measures may be a low priority before a disaster but might be viewed more positively in a disaster's aftermath. Ultimately, recovery is itself a process that requires a shared vision of the restored community. Emergency planners can play an important role in working with land use planners and building code officials to suggest alternative ideas for the community's future. Ultimately, the vision must be adopted by community leaders and residents. What is ultimately implemented depends on a compromise between the short-term goals of getting the community back to normal as soon as possible and the long-term goal of reducing future losses. The implementation process requires the community to tap a variety of resources, so the LEMA must help the community to negotiate the maze of state and federal agency requirements and funding options.

In summary, emergency planning is a critical component of preparedness for emergency response, but it plays a role in mitigation and recovery as well. The purpose of the planning process is to create a state of preparedness that enables a timely and effective response to emergencies. Preparedness is the ability of a LEMA to successfully manage a community's vulnerability to threats in the environment. Emergency planners may lead the planning process, but it can only be accomplished successfully by a team. The emergency response planning team should include representatives of other departments as well as external experts in a variety of fields. The team also needs administrative managers and representatives of NGOs such as the Red Cross and Salvation Army. Much consultation must take place with other local governments and with state and federal

government agencies. A successful planning process promotes preparedness, and preparedness promotes community resilience.

FOR EXAMPLE

A Tale of Three Coastal Storms in Texas

In June 2001, Tropical Storm Allison stalled over southeast Texas, dumping 40 inches of rain and flooding 70,000 homes in the Houston area alone. Four years later, as Hurricane Rita approached the same area, Houston residents were warned to evacuate if they had ever been flooded. As a result, more than two million residents evacuated inland—only a third of whom were at risk from hurricane wind or surge. This caused a tremendous traffic jam that caused people to take, on average, an additional seven hours to reach their evacuation destinations. In August 2017, Hurricane Harvey stalled over southeast Texas, dumping 60 inches of rain and flooding extensive areas of Houston. In the absence of preimpact evacuations, official emergency responders and the volunteer “Cajun Navy” needed to rescue 13,000 people stranded in their homes by the flooding.

SELF-CHECK

- Why is a regional approach to emergency response planning needed?
- What are the principal planning functions of the LEMA?
- Why are businesses important to local emergency response planning efforts?
- Once a particular threat has been targeted for management, what processes do planners engage?

1.5 Summary

Emergency planners increase their communities’ resilience by developing preparedness for emergency response. In this chapter, you learned the differences among emergencies, disasters, and catastrophes. You learned the difference between EOPs and IAPs. You examined the roles of local, state, and federal governments in emergency response planning. You also evaluated what your role will be in preparing for such events. As an emergency planner, you also need to involve other government departments, businesses, and NGOs in the planning process. Finally, you learned about the complementary roles of government and business in emergency response planning.

Key Terms

Agent-Generated Demands

Demands on emergency response agencies that arise from the effects of hazards such as strong wind, high water, ground shaking, heat, hazardous materials, or infectious diseases that threaten human health and safety, property, and the environment.

Automatic Aid Agreement (AAA)

A document that permits agreeing departments to respond to other jurisdictions as the need arises.

Catastrophe

An incident that occurs extremely rarely; can cause a very large number of casualties, extensive property damage, and overwhelming social disruption in multiple communities; impairs regional emergency response resources so severely that extensive resources are needed from higher levels of government; and requires substantial interorganizational coordination for a successful response.

Community Capability Analysis

An assessment of the adequacy of the community's resources to manage its hazard exposure and vulnerability.

Community Emergency Response Team (CERT)

A team of volunteers who have been trained to respond to disaster impacts within their communities.

Concept of Operations (CONOPS)

The overall framework, upon which the emergency operations plan (EOP) is based, that guides the emergency response to all incidents.

Continuity of Government (COG) Plan

The plan that documents the measures to ensure each of the executive, legislative, and judicial branches can perform its essential functions during and after a disaster.

Continuity of Operations (COO) Plan

The plan that documents the measures to ensure that an organization can continue to perform its essential functions during and after a disaster.

Convergence

The spontaneous flow of people, material, and other resources to an incident scene.

Disaster

An incident that occurs rarely; can cause many casualties, major property damage, and substantial social disruption; requires extracommunity resources from nearby communities and higher levels of government; and requires some degree of incident action planning for a successful response.

Emergence

The formation of new groups that arise to meet disaster demands that are not being met, often because they are unexpected.

Emergency

An incident that occurs relatively frequently; usually causes only few casualties, limited property damage, and minimal social disruption; and requires only local resources and standard operating procedures for a successful response.

Emergency Assessment

Procedures that guide the emergency response by means of diagnoses of past and present conditions and forecasts of future conditions. It also includes timely and accurate forecasts of the need for additional emergency response resources.

Emergency Medical Services (EMS)

Organizations that provide urgent pre-hospital treatment and stabilization for serious illness and injuries and transport to definitive care at hospitals.

Emergency Operations Center (EOC)

A centrally located facility in which emergency management staff and representatives of other agencies provide strategic direction, resource acquisition, and coordination of emergency response operations at the incident scene.

Emergency Operations Plan (EOP)	A document that describes the allocation of each emergency response function to the community organization that is best qualified to perform that function.
Emergent Multiorganizational Network (EMON)	An improvised organizational structure for coordinating organizations that have not previously worked together or established standardized methods of communication and coordination before an incident occurs.
Geographic Information System (GIS)	A system of computer hardware and software that is used to store, analyze, and visualize geographic data.
Hazard Exposure/Vulnerability Analysis	A systematic procedure for identifying the likelihood of occurrence of the hazards to which a community is exposed, as well as the community's physical and social vulnerability to the impacts of those hazards.
Hazard Operations	Expedient hazard mitigation actions that limit a hazard's magnitude, scope, and duration of impact by means of hazard source control, community protection works, land use actions, building construction actions, and building contents protection actions.
Improvisation	The implementation of emergency response actions that were not planned before an incident occurred.
Incident Action Plan (IAP)	The plan produced in each operational period during an incident that identifies the next operational period's response objectives, task assignments, and resource allocations.
Incident Command Post (ICP)	A temporary facility that is located as close to the incident scene as is safe, from which the Incident Commander, Command Staff, General Staff, and section personnel manage the incident response.
Incident Command System (ICS)	A standardized system for the management of incident response by an Incident Commander, who is assisted by Command Staff in the management of the Operations, Planning, Logistics, and Finance/Administration Sections that are staffed as needed.
Incident Commander	The individual who has the authority to determine which tasks will be performed and how resources will be allocated to those tasks.
Incident Management	Activities that mobilize the human and physical resources needed to respond to an emergency and direct those resources toward achieving the emergency response organization's objectives.
Local Emergency Management Agency (LEMA)	A municipal or county agency that is responsible for conducting a Hazard Exposure/Vulnerability Analysis and community capability analysis to support the community's prevention, protection, hazard mitigation, emergency preparedness, emergency response, and disaster recovery efforts.

Local Emergency Planning Committee (LEPC)

A municipal or county organization that has been formed to support the jurisdiction's emergency management by engaging all of the relevant government agencies, NGOs, and private sector organizations in a coordinated effort to plan for toxic chemical hazards.

**Memorandum of Understanding (MOU)
Mitigation Activities**

A document that states a general, nonbinding agreement between parties, detailing common goals and intentions.

Preimpact actions that provide passive protection from a disaster by modifying the hazard agent's impacts or the human use system.

Mutual Aid Agreement (MAA)

A document that identifies the resources that each jurisdiction promises to provide to the other when needed.

National Incident Management System

The Department of Homeland Security's standardized approach to incident management that defines the Incident Command System with resource naming and planning protocols.

**Nongovernmental Organization (NGO)
Personnel and Population Protection**

An organization, typically nonprofit, whose mission is to address social or humanitarian issues such as disaster relief. Actions that protect people from a hazard through the three basic strategies of *time* (reducing the duration of hazard exposure), *distance* (moving farther away from hazardous conditions), and *shielding* (using a physical barrier to protect against exposure to hazardous conditions), as well as search and rescue, and transport and treatment of injured victims.

**Policy Adoption
Policy Evaluation
Policy Formulation**

The approval of one or more policy options by an authority.

The process of assessing a policy's effectiveness.

The process of problem identification, data collection, analysis, and planning that is needed to identify policy options and gain the attention of decision makers.

**Policy Implementation
Preparedness Activities**

The actual execution of a policy.

Preimpact planning, staffing, equipping, training, exercising, and critiquing actions that support an active response to a threat that provides enough time to respond but not enough time to prepare and respond.

Prevention Activities

Actions directed toward combatting an ongoing terrorist attack or neutralizing the threat of imminent attack against the United States.

Protection Activities

Actions taken before an incident to deter threats, reduce vulnerabilities, or minimize the consequences associated with an incident.

Recovery Activities

Actions beginning after disaster impact is stabilized that focus on restoring the community to an acceptable level of functioning by removing debris and restoring lost functions such as housing and infrastructure.

Response Activities

Actions taken during an incident to stabilize the incident, save lives, and protect property and the environment.

Recovery Operations Plan (ROP)	A document that describes the preimpact plan for disaster recovery by identifying the recovery functions that need to be performed and allocation of each recovery function to the community organization that is best qualified to perform that function.
Response-Generated Demands	Demands on emergency response agencies that arise from the need for organizations that do not routinely work together to coordinate an effective response to the incident.
Standard Operating Procedure (SOP)	A document that provides detailed instructions that emergency response personnel use to ensure reliable performance of specific tasks during an incident.
State Emergency Management Agency (SEMA)	The organization at the state level that is responsible for coordinating the emergency management activities of state agencies, as well as providing technical and financial support to LEMAs.
State Emergency Response Commission (SERC)	The state agency that has been established to oversee LEPCs' planning for toxic chemical hazards.

Assess Your Understanding

Summary Questions

- 1 The ultimate goal of emergency response planning is to produce a written plan. True or False
- 2 Emergency response operations cease when an incident is stabilized, whereas emergency response planning processes never end. True or False
- 3 Emergency response planning and management are local; other levels of government may help, but the responsibility and impacts are on local government. True or False
- 4 Successful implementation of environmental hazards policy requires the involvement of many government departments beyond just emergency management, fire, police, and EMS. True or False
- 5 When you engage in both mitigation and preparedness planning, you are really developing community resilience. True or False
- 6 Government and business depend on one another during response and recovery operations. True or False

Review Questions

- 1 What is the goal of emergency response planning?
- 2 How is emergency response planning different from emergency response operations?
- 3 How do hazard policy issues get on the public agenda?

Applying This Chapter

- 1 You are an emergency planner in Longview, Washington, charged with reviewing the emergency plan for an eruption of the Mount St. Helens volcano. A challenge you identify is that there is no state government policy mandating that cities develop volcanic eruption emergency plans. How can you go about changing or influencing this hazard policy?
- 2 You have been assigned to develop a hazard exposure/vulnerability analysis for King's Mountain, North Carolina. You know the process will have to be extensive, but what questions would you ask first?
- 3 Wazoo, Washington, has just incorporated as a town. Your hazard exposure/vulnerability analysis reveals that the principal hazard in spring is river floods. The most effective protective action is to create an evacuation plan. What issues would you want to address?

You Try It

Hurricane Sheltering

Less than one month after Hurricane Katrina, Hurricane Rita threatened the Gulf Coast. This time the impact area was farther to the west, with landfall near Port Arthur, Texas. Major efforts to evacuate coastal communities were made in two states, moving people successfully from homes, hospitals, nursing homes, prisons, and other institutional arrangements. While more than two million people were moved away from the coast, the inland movement created a demand of its own—sheltering these evacuees. What measures can you identify for addressing such large-scale care needs?

New Orleans Levee System

Most of New Orleans is below sea level, but the levees and canal systems that protect New Orleans from Lake Ponchartrain and other sources of flooding have been in place for decades. Scientists and journalists had been pointing out the system's inadequacies for years. The problem was so well known that the *National Geographic* magazine had covered the issue and local newspapers regularly identified the danger. Yet no action was taken to strengthen or improve the levee system. If you lived in the city, what tactics could you have undertaken to get this issue on the political agenda?

Linking Private with Public Resources

The process of planning for terrorist attacks emphasizes cooperation between local governments and the business sector. Because high-value targets exist in each sector, LEMAs have been urged to develop outreach programs to private and nonprofit organizations to help with vulnerability assessment and the development of protective strategies. What kinds of protective measures do you think an emergency planner might recommend for a large chemical manufacturing firm?

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