6 Emergency preparedness and mitigation: Principles to public authorities

This chapter addresses the specific tasks by public authorities to ensure and support the development of onsite and offsite emergency plans.

Ensure and support the development of offsite and onsite emergency plans

Public authorities should ensure the development, implementation, testing and updating of offsite and onsite emergency plans wherever there is a hazardous installation. It is recognised that the responsibility for the actual development and implementation of such plans will differ between countries.

The responsibility for the development and implementation of offsite emergency plans will depend on the local laws and policies that are applicable. It may rest with local officials or with a designated group or committee and may include involvement by regional or national authorities. At all times it should be clear who has the decision-making responsibility.

Public authorities should ensure that all hazardous installations, including commercial users of hazardous substances, base their emergency planning on the full range of accident scenarios with consideration of potentially affected populations, environment and property (see Box 6.1 for the key elements of an emergency response plan).

As part of the emergency planning process, there should be an assessment of the potential environmental consequences of accidents and health consequences, and an assessment of the potential risks.

Public authorities at various levels have responsibilities related to offsite and onsite emergency planning:

- Central (national or regional) authorities should provide advice and assistance to local authorities, where appropriate, and ensure that officials at all levels are motivated to develop appropriate emergency preparedness and response capabilities.
- Public authorities at the local level should ensure that offsite and onsite emergency plans are co-ordinated and can be implemented consistently with the principles established at the central level.

Public authorities at all levels should integrate emergency planning for hazardous installations with emergency planning for natural disasters (such as floods, earthquakes and storms) and civil protection, as these activities involve many of the same requirements. This should result in co-ordinated and consistent emergency plans and include a co-ordinated command structure. It should be kept in mind that natural hazards can trigger accidents and can require adjustments in emergency response activities.

Public authorities should establish guidelines and standards for developing offsite and onsite emergency plans.

Box 6.1. Key elements of an emergency response plan

The key elements of an emergency response plan are as follows:

- Identification of hazardous facilities and information on the chemical risks associated with those facilities including identification of hazardous chemicals and the amounts of those chemicals, identification of events that can lead to uncontrolled releases, fire and explosion predicted consequences of the release and associated damages, and prevention measures in place at the facility.
- Emergency response procedures for facility owners and operators, as well as for local emergency, medical, public health and environmental protection personnel.
- Designation of an emergency co-ordinating officer (on-scene co-ordinator) and a facility emergency co-ordinator to implement the plan (including the necessary authority to mobilise and co-ordinate the emergency services).

- Procedures for notifying the public and the local emergency response team that a release has occurred.
- Templates for communicating information to the public and the media.
- Methods for determining the occurrence of a chemical release.
- Determination of the probable area and population affected by potential releases, including considerations of environmental justice, vulnerable residents, fenceline communities, etc.
- Identification of emergency response equipment in the community and at the facilities in the community, and the persons responsible for them (including identification of the response capabilities of regulated facilities).
- Evacuation plans (including evacuation routes and shelter-in-place procedures).

Identify all parties involved in emergency response

Public authorities should identify all parties who are expected to participate in emergency response, as part of the development of an offsite emergency plan. In addition, the roles and responsibilities, resources and capabilities of these participants should be realistically established and their commitment obtained. These participants may include:

- police, fire, medical (including hospitals), transport and welfare services
- emergency management or civil protection agencies
- public works and utilities
- the management of hazardous installations
- local officials
- public information/communication outlets
- public health and environmental agencies.

When establishing the emergency plan, it should be considered what capability is available on site within an enterprise to respond to potential accidents.

For cases where an accident at a hazardous installation may have effects on neighbouring communities, emergency planning and response should be co-ordinated among the potentially affected communities. Where an accident may have transboundary effects, emergency planning and response should be carried out in co-operation with all potentially affected countries and in line with international, regional and transboundary regulatory agreements.

Educate and train personnel involved in emergency response

All personnel involved in the emergency response process (including, for example, first responders such as police, fire and ambulance personnel) should be trained and educated with regard to the offsite emergency plan.

Emergency response training and education should, as a minimum, allow first responders to become familiar with:

- The local emergency plan(s).
- The hazardous installations in the community, including the results of the risk assessment of these installations.
- The personal risks posed to responders in an emergency.

- The need for protective measures when responding to chemical accidents, including the use of protective clothing and equipment.
- Important properties of different hazardous substances in their communities and the means for responding to accidents involving such substances.
- Contamination hazards and procedures for decontamination.
- Specific first aid measures.
- Possible adverse psychological effects on victims, emergency responders and the public.

Emergency response training and education should allow response personnel to take appropriate actions to minimise the adverse effects on health, the environment and property from chemical accidents. It should also allow them to improve their ability to gather information concerning possible adverse effects on health, the environment and property.

There should be joint training and exercises among stakeholders who may be involved in the emergency response (including, for example, response personnel and health/medical personnel).

Public authorities responsible for emergency response, including fire and rescue services, should familiarise themselves regularly with the relevant information concerning hazardous installations in their area, for example, access to the site, compatibility of emergency response equipment and onsite equipment, and communication between onsite emergency personnel and emergency responders.

Public authorities should ensure that emergency responders have access to sources of information (such as designated information centres) capable of providing the information needed in an emergency for the diagnosis, treatment and rehabilitation of persons injured by hazardous substances.

Communicate with the public and the media

When alerted to a chemical accident, response authorities should activate their emergency plans, including mechanisms for ensuring that the public is notified in a timely manner and informed about what actions to take to minimise adverse consequences.

As part of the emergency planning process, public authorities should ensure that systems are in place to provide information to the public following an accident and the immediate emergency response. During and after an accident, timely, credible, sensitive, informed, factual and accurate information should be provided openly and continuously to the public.

- Such information should cover the offsite effects of the accident, the risks of further adverse offsite effects, actions to be taken by the public and related follow-up information.
- To be effective and trustworthy, information provided to the public must be factual and simple.
- Communication with the public and media (social media, television, radio and print) during an accident demands special training and requires preparation. Templates and guidance should be developed as part of emergency planning. Contact between the media and the public should be developed and maintained as a long-term relationship.

Plan for response to health impacts

Emergency planning should take into account the range of possible health effects (acute, long-term and psychological effects) that could result from chemical accidents and the response actions that should be taken to address these effects on response personnel, employees and the community.

- Adverse effects may appear immediately or some time after the accident.

- Psychological effects, not necessarily related to exposure to hazardous substances, could appear during or after the accident. Emergency planning should take into account mechanisms for reducing stress and providing counselling services for those with responsibilities for crisis management and communication.

The emergency planning process should take into account the need to protect healthcare workers from exposure to hazardous substances.

- Such exposure could result from handling victims who have not been adequately decontaminated or from unexpected exposure at the site due to, for example, changes in wind direction.
- Healthcare providers normally should not enter contaminated areas, unless there are exceptional circumstances (e.g. for triage or life-saving procedures). In such cases, they should be fully protected, accompanied by rescue personnel and should not be allowed to exceed established exposure limits.

Hospitals and other treatment facilities, which may be called on during response to a chemical accident, should develop emergency plans (co-ordinated with the local offsite plan).

- These plans should describe systems/procedures for receiving and handling large numbers of patients at one time.
- These systems/procedures should address, for example: triage; arrangements for patient identification and documentation; and possible decontamination.
- Public authorities should ensure that these plans are in place and should assist in their development.

As part of the emergency planning process, there should be an assessment of the types of emergency medical resources needed to respond to different types of emergencies and to the range of possible casualties.

- Sharing and/or pooling of resources among public authorities and industries should be explored.
- In particular, the availability of oxygen as well as up-to-date antidotes and other pharmaceutical substances necessary for the treatment of persons injured by hazardous substances should be ensured.

As part of the emergency planning process, it should be ensured that adequate medical facilities are available, including transportation facilities.

- Decontamination equipment for onsite and hospital use and, as appropriate, protective equipment for medical emergency response personnel should be available.
- Public authorities, in co-operation with hospitals/treatment facilities, should establish backup procedures and systems for moving and treating a large number of victims if local hospitals and treatment facilities are inadequate (e.g. insufficient capacity or lack of specialised facilities).
- In order to accommodate emergency needs, provisions should be made for the rapid transformation of facilities normally used for other purposes. For example, when access to hospitals is limited, alternative premises such as schools, sports facilities and tents should be identified as places where temporary medical care could be provided to accident victims.
- Emergency plans should indicate the protective measures that should be taken in the event a hospital or other treatment facility is contaminated or otherwise threatened as a result of an accident (e.g. loss of electricity, structural damage or when the hospital is downwind from a release of hazardous substances).
    - Hospital/treatment facilities should make provisions for evacuating patients or for decontamination in the event the facilities become contaminated.

- Hospitals should also be aware that they may need to take special precautions if they have hazardous substances on site or if they receive contaminated patients.

Public health and education authorities should ensure up-to-date training of all relevant emergency medicine health/medical and paramedical professionals in emergency plans and arrangements, risks in the community, available resources and other relevant factors.

The organisation and planning of health-related response to accidents should involve veterinarians, biologists and others familiar with the care of livestock, pets and wildlife, both in order to protect the animals and to provide support to their owners/caretakers.

Plan for the protection of the environment

Public authorities should be aware of the potential risks to the environment due to a chemical accident. In particular, risks of contamination of the soil, watercourses and groundwater should be considered.

When developing emergency plans authorities should be aware of the need to manage the use of firefighting water, foam and other chemicals for example oil dispersants. Where possible, cooling water (usually lower contamination) should be separated from extinguishing water (higher contamination). Plans should be made to contain firefighting water on site and to prevent any escape into watercourses or groundwater. Plans should consider any potential release to the municipal wastewater treatment system and the necessary measures to retain and treat any contamination reaching the treatment works (Box 6.2).

Box 6.2. United Nations Economic Commission for Europe (UNECE) Safety Guidelines and Good Practices for the Management and Retention of Firefighting Water

The safety guidelines and good practices aim to support governments, competent authorities and operators in minimising the risk of fire and safely retaining firefighting water. They are intended to enhance existing practices and promote harmonised safety standards for firefighting water management and retention, in order to prevent accidental pollution of soil and water, including pollution that could cause transboundary effects. The guidelines were developed by the Joint Expert Group on Water and Industrial Accidents – a joint group between the Water and Industrial Accidents Conventions – in co-operation with the Expert Group on Fire-water Retention and supported by the UNECE secretariat.

Source: UN (2019[1]), *UNECE Safety Guidelines and Good Practices for the Management and Retention of Firefighting Water*, https://www.un-ilibrary.org/content/books/9789210042901.

Plans should be made to respond to any environmental contamination as soon as possible after it occurs. This may include barriers containing absorbent materials such as oil booms, for surface waters, sheet piling and pumps for groundwater and excavation of soil.

Public authorities should plan so as to be able to warn the relevant organisations and population in all affected areas in the event of environmental contamination with regard to the consumption of agricultural crops, produce from gardens and allotments, and the extraction of drinking water from groundwater or from surface waters.

Reference

UN (2019), *UNECE Safety Guidelines and Good Practices for the Management and Retention of Firefighting Water*, United Nations Economic Commission for Europe, https://www.un-ilibrary.org/content/books/9789210042901. [1]