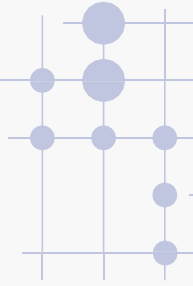


Environmental Health Air Quality During Emergencies and Disasters





Environmental Health & Air Quality During Emergencies and Disasters

Environmental emergencies can affect public health long after the immediate danger has passed. During disasters, industrial accidents, severe weather events, geopolitical crises, fires, oil spills, hazardous material incidents, or radiological events may contaminate air, water, soil, and coastal environments.

These environmental hazards may increase the risk of respiratory illness, skin irritation, food and water contamination, chemical exposure, and psychological stress. Some effects may appear immediately, while others may develop gradually over time.

Understanding environmental health risks and following official safety guidance can help individuals and communities reduce exposure, protect health, and improve resilience during emergencies.

Understanding Environmental Health Hazards

Environmental hazards may occur during natural disasters, industrial accidents, transportation incidents, fires, severe weather events, or geopolitical crises. These hazards may contaminate air, water, soil, food, and coastal environments, sometimes affecting communities far from the original incident.

People may be exposed to environmental hazards through breathing contaminated air, drinking unsafe water, touching polluted surfaces, or consuming contaminated food. Some environmental dangers are visible, while others may be invisible or odorless. For this reason, official alerts and public health guidance should always be taken seriously.

Examples of environmental hazards include:

- Smoke from fires or explosions
- Chemical releases and toxic fumes
- Oil spills affecting marine environments
- Water contamination
- Hazardous material incidents
- Air pollution from damaged infrastructure
- Radiological or nuclear contamination

Health-related actions to take:

- Follow official emergency alerts immediately
- Reduce unnecessary outdoor exposure
- Wash hands and exposed skin regularly
- Avoid touching suspicious materials or debris
- Monitor family members for symptoms such as breathing difficulty, eye irritation, nausea, or dizziness
- Keep emergency medications and first aid supplies available
- Seek medical advice if symptoms worsen or unusual symptoms appear



Air Quality and Respiratory Health

Air quality may rapidly worsen during emergencies due to smoke, dust, chemical exposure, industrial pollution, or large fires. Polluted air can irritate the lungs, eyes, and throat and may worsen chronic health conditions such as asthma, chronic obstructive pulmonary disease (COPD), or heart disease.

Poor air quality may affect people differently depending on their age, health status, and level of exposure. Children, older adults, pregnant women, and people with respiratory illnesses are especially vulnerable and may develop symptoms more quickly.

Common symptoms of poor air quality exposure include:

- Coughing
- Throat irritation
- Eye irritation
- Shortness of breath
- Wheezing
- Chest discomfort
- Headaches or dizziness

Health-related actions to take:

- Stay indoors when pollution levels are high
- Use prescribed inhalers or respiratory medications as directed
- Keep rescue inhalers easily accessible
- Drink adequate fluids unless medically restricted
- Monitor oxygen-dependent patients carefully
- Reduce physical activity outdoors
- Contact healthcare providers if symptoms increase

👉 Even temporary exposure to polluted air may affect health, especially during prolonged emergencies.



Protective Measures During Poor Air Quality

When authorities issue air quality alerts or advise sheltering indoors, taking protective measures can significantly reduce exposure to harmful pollutants. Indoor environments generally provide better protection from smoke, dust, and airborne particles when properly managed.

Families should prepare in advance by understanding how to reduce indoor exposure during environmental emergencies. Individuals with respiratory conditions should ensure medications such as inhalers remain easily accessible.

Recommended safety measures:

- Stay indoors as much as possible
- Keep windows and doors closed
- Reduce outdoor exercise or physical activity
- Use air conditioning or filtration systems when available
- Avoid exposure to smoke and dust
- Follow official guidance regarding masks or protective equipment

Indoor air safety recommendations:

- Avoid smoking indoors
- Reduce use of candles or incense
- Clean surfaces regularly to reduce dust accumulation
- Monitor vulnerable family members carefully

Health-related actions to take:

- Create a clean indoor room if outdoor air quality becomes dangerous
- Wash face and eyes after exposure to dust or smoke
- Change contaminated clothing after outdoor exposure
- Encourage children and elderly individuals to remain indoors
- Use masks properly when advised by authorities
- Seek medical care if wheezing, severe coughing, or breathing difficulty develops

👉 Seek medical care immediately if severe breathing difficulty or chest pain develops.

Smoke Exposure During Fires and Explosions

Smoke produced during fires or explosions may contain harmful gases, fine particles, and toxic chemicals that can affect both short-term and long-term health. Smoke inhalation may irritate the airways and reduce oxygen delivery to the body.

Possible symptoms of smoke exposure include:

- Persistent coughing
- Wheezing
- Chest tightness
- Eye burning or irritation
- Shortness of breath
- Fatigue or dizziness

Public safety recommendations:

- Avoid smoke-filled areas
- Stay indoors when smoke levels are high
- Use approved masks if recommended
- Keep rescue inhalers accessible
- Monitor children and elderly individuals closely

Health-related actions to take:

- Move affected individuals to fresh air immediately
- Rinse irritated eyes with clean water
- Avoid strenuous activity after smoke exposure
- Drink fluids to reduce throat irritation
- Observe children for delayed breathing symptoms
- Seek emergency care for severe breathing problems, confusion, fainting, or chest pain

👉 Individuals with severe breathing problems should seek immediate medical attention.

Sea Water Pollution and Oil Contamination

Oil spills and marine pollution incidents may occur due to industrial accidents, shipping incidents, infrastructure damage, or geopolitical emergencies. Oil contamination can spread quickly through coastal waters and affect beaches, marine ecosystems, seafood safety, and nearby communities.

Exposure to contaminated seawater or oil vapors may affect both physical health and the environment. Coastal populations, fishermen, marine workers, and recreational beach visitors may face higher exposure risks during such incidents.

Possible health effects from oil exposure include:

- Skin irritation or rashes
- Eye irritation
- Headaches or nausea
- Breathing irritation from fumes
- Gastrointestinal illness from contaminated seafood

Safety recommendations:

- Avoid swimming in contaminated water
- Do not touch oil residue or polluted debris
- Keep children away from affected beaches
- Avoid fishing or collecting seafood from contaminated zones
- Contact healthcare services if eye exposure causes persistent irritation

👉 Follow official environmental advisories regarding beach closures and seafood safety.

Radiological and Nuclear Emergencies

Radiological or nuclear emergencies may occur due to industrial accidents, transportation incidents involving radioactive materials, or geopolitical crises. Although rare, these incidents require calm and careful public response based on official guidance.

Radiological contamination may spread through air, dust, water, or food. Because radiation cannot be seen, smelled, or tasted, individuals may not immediately recognize exposure risks. This makes official instructions extremely important during such emergencies.

Possible exposure pathways include:

- Breathing contaminated air or dust
- Consuming contaminated food or water
- Direct contact with radioactive materials

Immediate protective actions may include:

- Staying indoors
- Moving to interior rooms away from windows
- Closing ventilation systems if advised
- Avoiding unnecessary outdoor exposure
- Following shelter-in-place or evacuation instructions

Health-related actions to take:

- Remove outer clothing if exposure is suspected
- Shower thoroughly with soap and water if advised
- Avoid touching face or eating before washing hands
- Consume only approved food and water supplies
- Monitor for nausea, vomiting, dizziness, or unusual symptoms
- Follow official medical screening or radiation testing instructions
- Do not take iodine tablets unless instructed by health authorities

👉 Do not self-medicate with iodine tablets or other substances unless officially instructed by health authorities.

Water Safety During Environmental Emergencies

Environmental emergencies may disrupt water systems or contaminate drinking water sources through flooding, chemical spills, sewage overflow, oil pollution, or infrastructure damage. Unsafe water may carry harmful bacteria, viruses, chemicals, or toxic substances.

Protecting water supplies during emergencies is essential to prevent gastrointestinal illness and other health complications. Families should always follow official water safety advisories and prepare emergency water supplies in advance.

Water safety recommendations:

- Use bottled or approved drinking water if advised
- Avoid drinking water with unusual smell, taste, or color
- Store emergency clean water supplies
- Prevent children from playing in contaminated floodwater
- Follow boil-water notices when issued

Pharmacists can also help explain:

- Medication instructions
- Safe storage
- Side effects
- Drug interactions

 **Safe water practices help reduce infection and illness during emergencies.**

Food Safety During Environmental Emergencies

Food may become unsafe during disasters due to contamination from smoke, chemicals, floodwater, oil pollution, or prolonged power outages. Consuming unsafe food may increase the risk of food poisoning and other health problems.

Families should carefully inspect food supplies during and after emergencies and avoid consuming any food that may have been exposed to contamination.

Food safety precautions:

- Discard food exposed to contaminated water or chemicals
- Avoid seafood from restricted or polluted areas
- Keep refrigerated foods cold during power outages when possible
- Wash fruits and vegetables thoroughly
- Follow official food safety advisories

Health-related actions to take:

- Seek medical care if symptoms of food poisoning occur
- Watch for vomiting, diarrhea, abdominal pain, or fever
- Drink safe fluids to prevent dehydration
- Separate raw and cooked foods during emergency sheltering situations

 **When in doubt, throw it out.**

Protecting Vulnerable Groups

Certain groups may be more affected by environmental hazards during emergencies due to increased sensitivity or medical vulnerability. Children breathe more rapidly than adults, while older adults and individuals with chronic illnesses may have reduced ability to tolerate environmental stress.

Communities and families should pay special attention to vulnerable individuals and ensure they receive early support and medical care if symptoms develop.

Higher-risk groups include:

- Children
- Pregnant women
- Older adults
- People with asthma or lung disease
- Individuals with chronic medical conditions
- Outdoor workers

Protective actions include:

- Limiting outdoor exposure
- Ensuring medications remain available
- Monitoring symptoms closely
- Seeking medical advice early when needed

Health-related actions to take:

- Maintain regular medications and treatment plans
- Ensure vulnerable individuals stay hydrated
- Monitor breathing and general condition frequently
- Keep emergency contact information available

👉 Protecting vulnerable individuals strengthens overall community resilience.

Mental Health and Environmental Emergencies

Environmental emergencies may also affect emotional well-being. Fear about pollution, uncertainty about safety, displacement, and exposure to distressing news may increase stress and anxiety among adults and children.

Psychological reactions during emergencies are normal, but prolonged stress may affect sleep, concentration, mood, and daily functioning. Emotional support and trusted communication can help individuals cope more effectively.

Healthy coping strategies include:

- Following trusted information sources
- Staying connected with family and community
- Maintaining routines when possible
- Limiting exposure to distressing media
- Seeking emotional support when needed

Health-related actions to take:

- Encourage open conversations with children and family members
- Seek professional support if anxiety becomes overwhelming
- Maintain healthy sleep, nutrition, and hydration
- Use stress reduction techniques such as breathing exercises or physical activity
- Contact mental health support services if severe distress occurs

 **Mental health is an important part of emergency preparedness and recovery.**

Community Preparedness and Environmental Responsibility

Communities play an essential role in reducing environmental health risks during emergencies. Public cooperation with safety instructions, environmental advisories, and emergency response efforts helps protect both individuals and the wider community.

Prepared communities are more resilient and better able to recover from emergencies. Sharing accurate information and supporting vulnerable individuals can reduce panic and improve public safety.

Community responsibilities include:

- Following official guidance
- Reporting hazards or pollution
- Avoiding rumors and misinformation
- Supporting vulnerable individuals
- Promoting calm and cooperation

Health-related actions to take:

- Share verified health information only
- Assist vulnerable neighbors safely
- Participate in community awareness and preparedness programs
- Report environmental hazards to authorities promptly
- Avoid overwhelming emergency healthcare services unless necessary

 **Community awareness and shared responsibility help save lives during emergencies.**

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Thanks



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