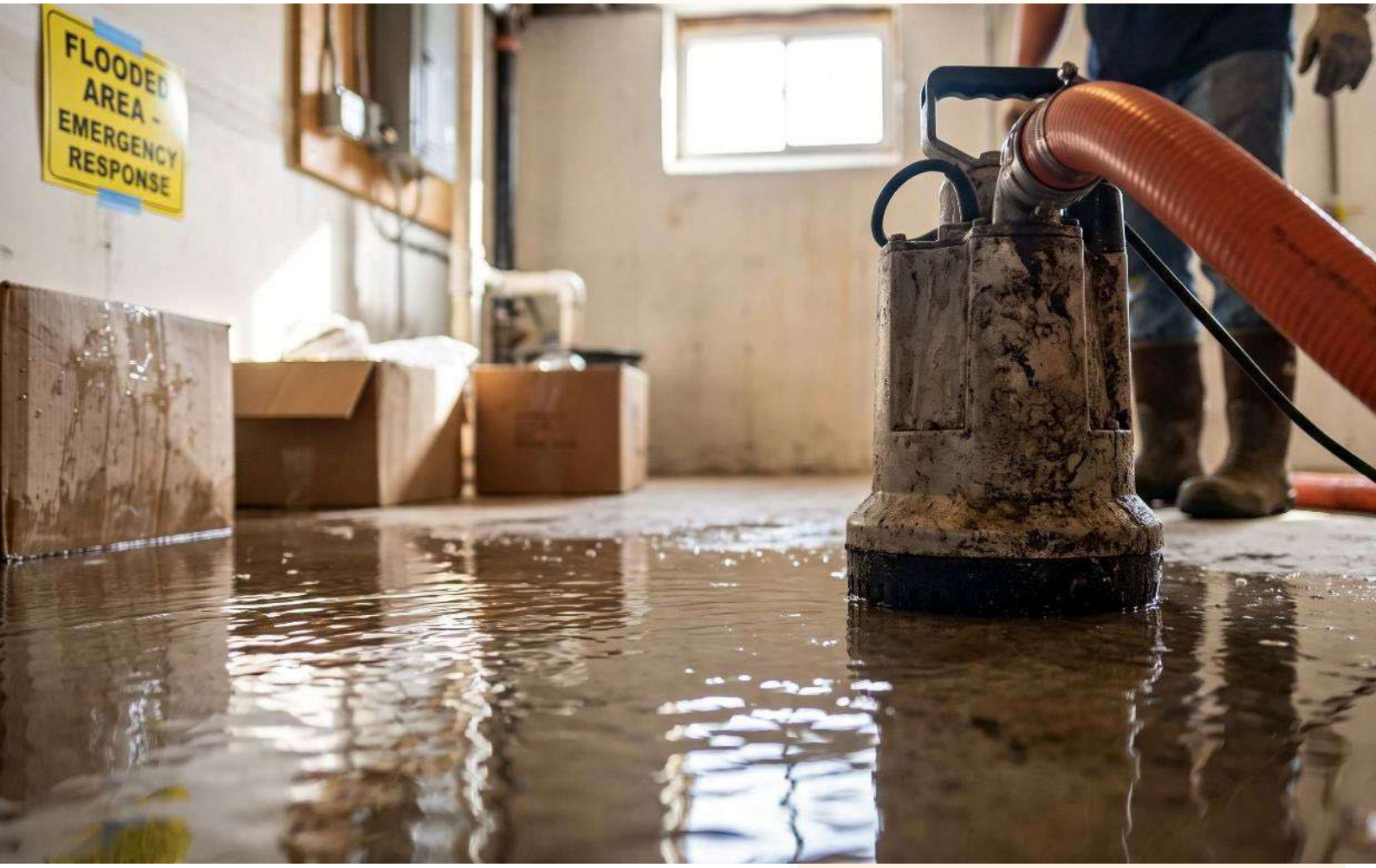
European Agency for Safety and Health at Work

EU GUIDANCE

# FLOOD RISKS AT WORK: PRACTICAL GUIDANCE ON PREPAREDNESS FOR SAFE AND RESILIENT SMALL BUSINESSES




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**Author**: Mireya Rifá Fabregat.

**Project management:** Maurizio Curtarelli and Annick Starren — European Agency for Safety and Health at Work (EU-OSHA).

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# Introduction

## ➢ Climate change and extreme weather events

Climate change is widely recognised as one of the most significant global challenges of the 21st century, with profound implications for environmental systems, economic stability and human health. In Europe, climate change is increasingly affecting occupational safety and health (OSH) by altering the frequency, intensity and distribution of extreme weather events.

Scientific evidence shows that rising global temperatures are closely linked to changes in the frequency and intensity of extreme weather phenomena, including heatwaves, heavy rainfall, storms and flooding. In Europe, these trends are particularly evident in several regions, where more frequent and intense rainfall events are contributing to an increased risk of flooding in both urban and rural areas.

The implications of climate change for OSH are multifaceted. Climate change not only introduces new occupational hazards but also exacerbates existing risks, creating more complex exposure scenarios for workers. For example, extreme weather events can intensify physical hazards, increase exposure to biological and chemical agents, and generate additional psychosocial risks associated with uncertainty and disruption.

Furthermore, climate change contributes to the emergence of systemic and cascading risks, whereby a single event, such as a flood, can trigger a chain of consequences affecting infrastructure, supply chains and working conditions. These interconnected risks highlight the need to move beyond traditional hazard-based approaches towards more integrated and adaptive OSH risk management strategies, supported by appropriate institutional and regulatory frameworks at European and national levels.

## ➢ Flood risks and occupational safety and health

From an OSH perspective, floods pose both direct and indirect risks to workers:

- **Direct risks** arise from immediate exposure to flooding and include physical hazards such as drowning, injuries, electrocution and exposure to contaminated water.
- **Indirect risks** result from the wider disruption caused by flooding, including damage to infrastructure, interruption of essential services and supply chains, and changes in work organisation.

This distinction concerns how risks arise, rather than their physical or psychosocial nature. Both direct and indirect risks may have physical and psychosocial consequences. In particular, disruption to work organisation, increased workloads, uncertainty and prolonged recovery may contribute to stress, anxiety and fatigue among workers.

A distinctive feature of flood-related risks is their **temporal complexity**, as hazards and their consequences may evolve throughout the event and its aftermath:

- **Before the flood**, workers may be exposed to adverse weather conditions and risks associated with preparatory activities, such as installing temporary flood barriers, securing hazardous substances, moving equipment or preparing evacuation routes.
- **During the flood,** immediate life-threatening hazards predominate, including drowning, electrocution, falling debris, entrapment, slips, trips and falls, and exposure to fast-moving or contaminated water.
- **After the flood**, clean-up and reconstruction activities may expose workers to mould, sewage, chemical residues, unstable structures, damaged electrical systems and risks associated with handling debris.

The consequences of flooding may also extend well beyond the immediate event, potentially leading to prolonged operational disruption, psychosocial risks, chronic health problems, economic losses and changes in working conditions.

This evolving and multifaceted nature of flood-related risks highlights the importance of integrating flood preparedness, emergency response and safe recovery into OSH management systems. Each stage requires appropriate preventive and protective measures to ensure workers' safety and health, as detailed in the following sections of this guidance.

## ➢ Why SMEs are particularly vulnerable

SMEs are the backbone of the European economy, representing the vast majority of businesses and a significant proportion of employment. However, they are particularly vulnerable to flooding and other climate-related risks due to their more limited financial, technical and organisational capacity. These limitations can affect their ability to anticipate, respond to and recover from flood events, including their capacity to ensure the safety and health of workers.

SMEs' level of vulnerability is influenced not only by their size but also by the nature of their activities and the location of their workplaces. Businesses operating in sectors such as manufacturing, logistics, construction, agriculture and transport may face significant physical impacts, particularly in flood-prone areas, exposing workers to hazards such as floodwaters, damaged infrastructure and unsafe working conditions. Office-based SMEs may experience lower direct exposure but may still be affected by disruptions to utilities, transport networks and workplace accessibility, with potential consequences for workers' safety and health.

SMEs also tend to have less formalised organisational structures, which can limit the integration of flood-related risks into OSH management systems. Risk assessments may not adequately account for flooding, while emergency planning, awareness and worker training may be insufficient. This can increase workers' exposure to occupational risks before, during and after flood events, including physical hazards and psychosocial risks associated with emergency situations, business disruption and recovery activities. Given these challenges, this guidance aims to support SMEs in integrating flood-related risks into their OSH management systems and strengthening their capacity to protect workers.

This guidance is based on the findings of a study[1], which complements this guidance information, and includes practical tools (a self-assessment checklist and a step-by-step practical guidance) to help SMEs to review their level of preparedness for floods events.



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[1] See *Flood risks at work and their implications for occupational safety and health*, available at: https://osha.europa.eu/en/publications/flood-risks-work-practical-guidance-preparedness-safe-and-resilient-small-businesses

# How floods affect occupational safety and health

## ➢ Main workplace and organisational impacts of flooding

Flooding can have consequences that extend well beyond the immediate hazards to workers. It can damage workplaces, interrupt business operations and affect the organisation's ability to continue operating safely. Even when workers are not directly exposed to floodwater, the resulting disruption can create new occupational risks that need to be managed.

The extent of these impacts depends on factors such as the severity and duration of flooding, the characteristics of the workplace, and the resilience measures already in place. Some effects are immediate, while others may continue for weeks or months after the event.

The main workplace and organisational impacts are reported below.

**Main workplace and organisational impacts of flooding**

### Physical, operational and environmental impacts

#### Damage to buildings, infrastructure and work equipment

Floodwater can affect the structural integrity of buildings and damage machinery, electrical installations, tools, vehicles and other work equipment. Access routes, storage areas and utility services may also be disrupted, preventing normal work activities from resuming.

After the flooding, and before reoccupying the workplace, buildings, installations and equipment should be inspected to confirm that they can be used safely.

#### Interruption of business operations

Flooding may interrupt production, service delivery or administrative activities for extended periods. Damage to premises, equipment or infrastructure can result in temporary closure, reduced productivity and financial losses.

Business continuity arrangements can help organisations maintain essential activities and support a safer recovery.

#### Disruption of utilities and essential services

Flood events may interrupt electricity, gas, drinking water, wastewater systems and telecommunications. Transport infrastructure and access routes may also be affected, making it difficult for workers, suppliers and emergency services to reach and/or leave the workplace.

Organisations should consider how the loss of essential services could affect worker safety and critical operations.

### Organisational, worker-related and longer-term impact

#### Supply chain disruption

Flooding can affect suppliers, contractors, transport networks and distribution systems, delaying deliveries of materials, equipment and essential services. In some cases, disruptions occurring far away from the workplace may still affect business operations.

Understanding dependencies within the supply chain can help organisations improve preparedness and business continuity planning.

#### Impacts on workers and work organisation

Flooding may affect workers even when the workplace itself remains operational. Travel disruption, school closures, caring responsibilities, damage to homes and increased workloads can all influence workers' well-being, attendance, and their ability to carry out their work safely. In terms of psychosocial risks, fear of reoccurrence can cause stress, anxiety and mental distress for workers. Similarly, it may involve long periods of bureaucracy or responsibility disputes for companies.

Organisations should recognise these wider impacts when planning preparedness measures, emergency arrangements and recovery activities.

#### Longer-term organisational consequences

Recovery often continues long after floodwater has receded. Organisations may need to repair or replace equipment, restore services, review work processes and update emergency arrangements based on lessons learned.

Each flood event provides an opportunity to strengthen preparedness and improve resilience to future events.

Main workplace and organisational impacts of flooding

Physical, operational and environmental impacts

### Environmental contamination

Floodwater may spread hazardous substances released from industrial facilities, fuel storage areas, agricultural land or waste management sites. Contamination may also originate within the workplace if hazardous substances are displaced or damaged during flooding.

These situations may increase occupational exposure at the time of the flood as well as afterwards during inspection, clean-up and waste-handling activities, and should therefore be considered during the workplace risk assessment.

## ➢ Key occupational hazards associated with floods

When considering such impacts, it is worth mentioning that floods can expose workers to a wide range of occupational hazards before, during and after a flood event. While some hazards arise immediately, at the time of the flood event, others become more significant at a later stage, for example during inspection, clean-up, repair and recovery activities. The nature and severity of these hazards vary according to the characteristics of the flood, the workplace and the work being undertaken.

In practice, workers are often exposed to several hazards at the same time. For example, clean-up activities may involve contact with contaminated water, unstable structures, electrical hazards and physically demanding activities. Recognising these combined exposures is essential for planning effective preventive measures.

Mapping flood-related OSH hazards

### Physical hazards

Floodwater, damaged buildings and unstable ground can create immediate physical hazards. Many of these hazards continue after floodwater has receded and may affect workers involved in inspection, repair and recovery activities.

Common examples include:

- fast-flowing or deep water that can cause drowning or loss of footing;
- slips, trips and falls on wet, muddy or unstable surfaces;
- structural instability or collapse of buildings, walls or roofs;
- falling objects and debris;
- hidden holes, open manholes or damaged ground surfaces;
- injuries caused by floating or submerged objects; and
- injuries associated with the use of machinery, tools and vehicles during recovery work.

The level of risk will depend on the condition of the workplace, the type of work being carried out and the duration of exposure.

### Ergonomic and physical workload hazards

Physical demands are not limited to the recovery phase, and may also occur during flood preparedness activities such as installing temporary flood protection measures or moving equipment, as well as during the flood event itself. However, recovery activities are often physically demanding and may continue for extended periods under difficult environmental conditions. Workers may be required to handle heavy materials, adopt awkward postures or perform repetitive tasks.

Common ergonomic hazards include, but are not limited to:

- manual handling of debris, furniture and equipment;
- repetitive lifting, carrying, pushing or pulling;
- awkward or constrained working postures;
- prolonged standing or kneeling; and
- fatigue resulting from long working hours.

Planning work activities and providing suitable equipment can significantly reduce these risks.

## Mapping flood-related OSH hazards

### Biological hazards

Floodwater frequently contains microorganisms originating from sewage systems, agricultural runoff, waste disposal sites and contaminated soil. Workers may also be exposed to mould growth during clean-up and restoration activities.

Potential biological hazards include:

- bacteria;
- viruses;
- fungi and mould;
- parasites; and
- bioaerosols generated during cleaning or demolition work.

Exposure may occur through:

- direct skin contact;
- cuts or abrasions;
- inhalation of contaminated aerosols; and
- accidental ingestion.

The likelihood of exposure increases when contaminated water remains stagnant for prolonged periods, or where drying and cleaning are delayed.

### Chemical hazards

Flooding may release hazardous substances stored within workplaces or transported by floodwater. Chemicals can also enter buildings from neighbouring industrial sites, fuel storage facilities or agricultural land.

Potential sources include:

- fuels and oils;
- cleaning agents and disinfectants;
- pesticides and fertilisers;
- industrial chemicals; and
- asbestos-containing materials disturbed by structural damage.

Exposure may occur through skin contact, inhalation or accidental ingestion during the flood, as well as later on during the inspection, clean-up and waste-handling activities.

### Electrical hazards

Floodwater can damage electrical installations, equipment and distribution systems, creating serious risks of electric shock, burns and fire during the flood and in later stages.

Typical situations include:

- damaged electrical installations;
- submerged electrical equipment;
- exposed electrical cables;
- temporary electrical supplies used during recovery work; and
- energised equipment before it has been inspected.

Electrical installations should always be inspected and declared safe before power is restored or work resumes.

### Psychosocial hazards

Flood events can have significant psychological and organisational consequences for workers. Uncertainty, disruption and increased workloads may affect mental well-being during both the emergency and recovery phases.

Common psychosocial hazards include:

- stress associated with emergency situations;
- anxiety about personal safety or damage to property;
- increased workload and time pressure;
- fatigue caused by prolonged recovery activities;
- exposure to distressing situations; and
- uncertainty regarding work organisation and business continuity.

Organisations should recognise that psychosocial risks may continue after people have completed their physical recovery and should provide appropriate support where needed.

## ➢ Jobs and work activities most exposed to flooding

Workers may be exposed to flood-related hazards in many different occupations and sectors. However, the level of risk depends less on the job title itself and more on the work activities performed,[2] the characteristics of the workplace and the stage of the flood event.

Exposure is generally higher where work is carried out outdoors, in low-lying or flood-prone locations, close to watercourses or during inspection, clean-up and recovery activities. Workers may also face increased risks when they are required to restore essential services, remove debris, or work in damaged buildings.

Rather than focusing on specific occupations, employers should identify which work activities within their organisation could be affected by flooding and consider how these activities might expose workers to occupational hazards before, during and after a flood event.

Some examples of work activities by sector that may involve increased exposure to flood-related hazards are reported below. The examples are illustrative and should not be regarded as exhaustive.

**Examples of work activities by sector and exposure to flood-related hazards**

| Sector | Examples of work activity | Typical flood-related hazards |
|---|---|---|
| Emergency services | Rescue, evacuation, emergency response | Fast-flowing water, unstable structures, contamination, fatigue |
| Construction | Inspection, repair, reconstruction | Structural collapse, electrical hazards, manual handling |
| Utilities | Restoration of electricity, gas, water and telecommunications | Electrical hazards, confined spaces, contaminated water |
| Transport and logistics | Road clearance, transport operations, deliveries | Damaged infrastructure, unstable ground, traffic hazards |
| Agriculture | Livestock care, crop recovery, equipment inspection | Contaminated water, biological hazards, machinery |
| Waste management | Collection, transport and disposal of flood waste | Biological and chemical hazards, sharps, manual handling |
| Manufacturing and industrial facilities | Inspection, maintenance, restarting operations | Chemical hazards, damaged equipment, electrical risks |
| Cleaning and restoration | Cleaning, drying, waste removal, disinfection | Biological hazards, chemicals, ergonomic risks |
| Facility management and maintenance | Inspection and repair of buildings and installations | Falls, structural instability, electrical hazards |
| Education | Infrastructure overview and care, utilities, access to buildings | Electrical risks, damaged infrastructure, water pollution |
| Retail establishments | Restoration of electricity, gas, water and telecommunications | Electrical hazards, confined spaces, contaminated water |

Flood exposure is not limited to these sectors and work activities. Any worker can be affected if floodwater disrupts the workplace, access routes or essential services. For this reason, flood preparedness should be based on the specific work activities carried out within the organisation rather than on job titles alone. The examples presented above should therefore be used as a reference to

support the workplace risk assessment by helping employers to identify which work activities, and the workers performing them, may require additional preventive or protective measures.

## ➢ Factors influencing occupational flood risk

The occupational risks associated with flooding are not the same in every workplace or during every flood event. The level of risk depends on a combination of factors related to the flood itself, the workplace, the work activities being carried out and the organisation's level of preparedness.

Understanding these factors helps employers to identify where they may need to implement additional preventive measures, thereby promoting a more effective workplace risk assessment.

### The main factors influencing occupational flood risk

#### Location of the workplace

The geographical location of a workplace is one of the main determining factors for flood risk. Workplaces situated in flood-prone areas, low-lying land, coastal zones, or near rivers and streams, are generally more likely to be affected. Local topography, drainage capacity and surrounding land use may also influence both the likelihood and severity of flooding.

Employers should make use of official flood hazard and flood risk maps, together with local knowledge, when assessing potential exposure.

#### Workers at greater risk

Some workers may be more vulnerable to the effects of flooding because of their health, work activities or personal circumstances.

These workers can include:

- workers carrying out emergency response, inspection, clean-up or recovery activities;
- lone workers (teleworkers);
- temporary or agency workers unfamiliar with the workplace;
- young or inexperienced workers;
- workers with disabilities or underlying health conditions; and
- workers who may require additional assistance during evacuation.

These factors should be considered when planning preventive and emergency arrangements.

#### Characteristics of the flood event

Not all flood events create the same hazards. The level of risk is influenced by factors such as:

- the depth and speed of floodwater;
- the duration of flooding;
- the extent of the affected area;
- contamination of floodwater; and
- the amount of debris carried by the water.

These characteristics influence both the immediate hazards and the conditions encountered during recovery.

#### Preparedness and organisational resilience

The consequences of flooding are often influenced by the level of preparedness before the event occurs.

Examples include:

- effective emergency planning;
- worker information and training;
- clear communication arrangements;
- regular review of emergency procedures;
- business continuity planning; and
- maintenance of flood protection measures.

Well-prepared organisations are generally better able to protect workers, reduce disruption and support a safer recovery.

#### Work activities and workplace characteristics

The type of work being undertaken has a major influence on occupational risk. Activities carried out outdoors, underground, in confined spaces or in damaged buildings often involve greater exposure than work performed in unaffected indoor environments.

#### Flood warnings and access to reliable information

Timely information allows organisations to activate emergency arrangements before conditions deteriorate. Employers should identify **reliable sources of weather forecasts and official flood warnings**, understand how warnings are issued and ensure that relevant information can be

## The main factors influencing occupational flood risk

The characteristics of the workplace should also be considered, including:

- building construction and condition;
- access and evacuation routes;
- electrical installations and utilities;
- storage of hazardous substances; and
- critical equipment and infrastructure.

communicated promptly to workers and others who may be affected.

**Early warning systems** should support, rather than replace, workplace preparedness and emergency planning. Official flood warnings and civil protection information should inform the workplace risk assessment and emergency decision-making. However, they do not on their own constitute uniform workplace action thresholds that are automatically applicable to every organisation. The appropriate response should take account of any instructions issued by the competent authorities, the workplace risk assessment, and the actual or foreseeable conditions affecting the workplace.

Occupational flood risk is not determined by any single characteristic, but by the interaction of these factors. For that reason, workplace risk assessments should consider the likelihood of flooding as well as its potential consequences for workers, work activities and business continuity. This assessment provides the basis for selecting appropriate preventive measures and developing effective emergency and recovery arrangements.



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# Workplace risk assessment

In accordance with the EU's OSH Framework Directive (Directive 89/391 EEC) and its corresponding transpositions into national legislation, a workplace risk assessment is the foundation of effective OSH management. Where flooding may affect a workplace, the risk assessment should consider how flood events could expose workers to occupational hazards before, during and after the event.

Flood-related risks vary considerably between workplaces. They depend on factors such as the location of the workplace, the work activities carried out, the characteristics of the flood event and the effectiveness of existing preventive measures. For that reason, flood risks should be assessed within the context of each organisation rather than using a generic approach.

The purpose of the assessment is to identify who may be harmed, understand how workers could be exposed, evaluate the level of risk and determine whether additional preventive measures are required. It should also support emergency planning, safe recovery and business continuity.

Where required by national legislation, the assessment should be documented, periodically reviewed and updated whenever significant changes occur, or after a flood event.



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## ➢ Preparing the workplace risk assessment

A flood-related workplace risk assessment should of course be carried out in advance of any flooding events. Early preparation allows organisations to identify foreseeable hazards, understand who may be affected and plan preventive measures before normal working conditions are disrupted.

The assessment should be proportionate to the size of the organisation, the nature of its activities and the level of flood risk. Existing workplace risk assessments can usually be updated to include flood-related hazards rather than creating a separate assessment.

When preparing the assessment, employers should consider:

- the location of the workplace and its potential exposure to flooding;
- previous flood events affecting the workplace or surrounding area;
- the work activities that may be affected;
- workers who may be particularly vulnerable;
- existing preventive and protective measures; and
- dependencies on utilities, transport networks and suppliers.

Information from official flood hazard maps, flood risk maps, weather services and flood warning systems can support the assessment, together with local knowledge and previous experience of flooding.

The assessment should involve workers and, where appropriate, their representatives. Their practical knowledge of work activities and workplace conditions can help identify hazards that may not otherwise be recognised.

## ➢ Conducting the workplace risk assessment

The workplace risk assessment should identify how flooding could affect workers before, during and after a flood event. Rather than considering flooding as a single hazard, employers should examine how it may create or increase different occupational risks throughout the workplace.

The assessment should consider:

- the work activity that could be affected;
- who may be exposed, including workers with increased vulnerability;
- the occupational hazards that may arise during each phase of the flood event;
- the likelihood and potential consequences of exposure; and
- the adequacy of existing preventive and protective measures.

Flood-related risks rarely occur in isolation. Workers involved in inspection, clean-up or recovery activities may be simultaneously exposed to physical, biological, chemical, electrical, ergonomic and psychosocial hazards. These combined exposures should be considered when evaluating the overall level of risk.

The assessment should also take account of how flooding could affect the workplace itself. Damage to buildings, utilities, work equipment or access routes may introduce additional hazards or change the way work is carried out. Disruption to essential services, contractors or supply chains may also influence occupational risks and should be considered where relevant.

Existing control measures should be reviewed to determine whether they remain effective under flood conditions. Where necessary, additional measures should be identified to reduce risks to workers.

## ➢ Selecting appropriate preventive measures

The findings of the workplace risk assessment should be used to determine the preventive measures needed to eliminate risks or, where this is not reasonably practicable, to minimise risks.

Priority should be given to collective preventive measures that protect all workers. Personal protective equipment (PPE) should be regarded as a supplementary measure and should not replace other risk control measures.

When selecting preventive measures (see next section) employers should consider:

- the nature of the work activities;
- the characteristics of the workplace;
- the workers who may be affected;
- the severity of the potential consequences; and
- the practicality and effectiveness of the proposed measures.

Flood risks and workplace conditions may change rapidly. Preventive measures should therefore remain flexible and be adapted whenever circumstances change.

Further guidance on preventive measures is provided in the next section.

## ➢ Reviewing and documenting the workplace risk assessment

A workplace risk assessment is not a one-off exercise. It should be reviewed regularly to ensure that it continues to reflect workplace conditions and the level of flood risk.

- The assessment should also be reviewed whenever:
- a flood event has occurred;
- work activities change significantly;
- new equipment or processes are introduced;
- the workplace is altered; and
- lessons learned identify the need for improvements.

The review should confirm whether existing preventive measures remain effective and identify any additional actions needed to improve worker protection.

Where required by national legislation, the results of the workplace risk assessment should be documented. Documentation should be proportionate to the size of the organisation and the complexity of its activities, while providing a clear record of the hazards identified, the risks assessed and the preventive measures implemented.

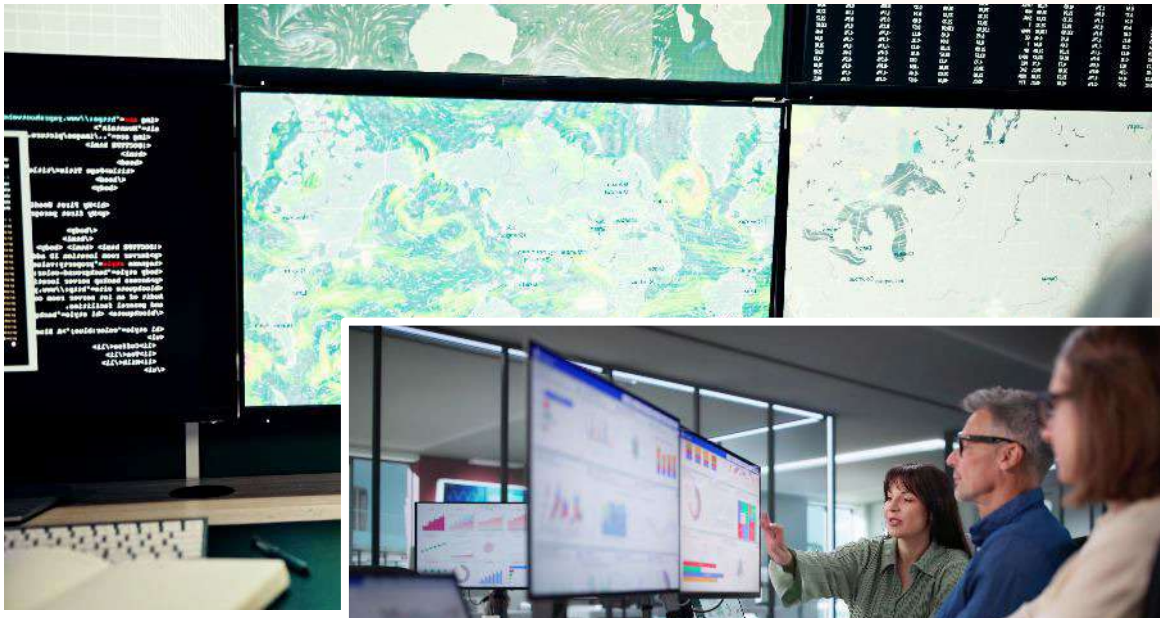
Regular review helps organisations maintain effective flood preparedness and supports continual improvement based on operational experience and lessons learned.

# Preventing and managing occupational flood risks

Effective flood risk management does not depend solely on the severity of flood events, but also on the extent to which organisations anticipate potential impacts, integrate flood-related risks into their OSH management, and respond in a timely and coordinated manner.

Effective management of occupational flood risks begins long before flood events occur. Preventive measures should be planned in advance, implemented where appropriate and reviewed regularly as part of the organisation's OSH management.

No single measure can eliminate all flood-related risks. Employers should adopt a combination of preventive, protective and organisational measures based on the findings of the workplace risk assessment.



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Although every workplace is different, several common practices can help SMEs to improve worker protection, strengthen organisational resilience and reduce disruption before, during and after flood events. The selection of measures should reflect the characteristics of the workplace, the work activities carried out and the potential consequences of flooding.

The recommendations presented below should be adapted to the specific characteristics of each organisation, taking into account its activities, location, workforce, and level of flood risk.

## ➢ Integrating flood risk into OSH management

Flood-related occupational risks should be managed as part of the organisation's overall OSH management rather than through standalone emergency arrangements.

Integrating flooding into existing workplace risk assessments, emergency procedures and business continuity planning helps ensure that preventive measures remain proportionate, coordinated and easier to implement.

Employers should:

- consider flood-related hazards within the workplace risk assessment;
- identify work activities and workers who may be particularly exposed;

- review existing preventive measures to determine whether they remain effective during flood events;
- ensure that flood risks are considered when reviewing workplace changes, new activities or significant organisational developments; and
- update the assessment after flood events or whenever lessons learned identify opportunities for improvement.

Embedding flood preparedness within existing OSH processes reduces unnecessary complexity and supports continual improvement over time.

## ➢ Strengthening preparedness and emergency planning

The interviews consistently showed that organisations with previous flood experience were generally better prepared to respond to future events. Their experience demonstrated that preparedness depends less on complex procedures than on practical arrangements that can be implemented quickly and understood by everyone involved.

SMEs should therefore focus on developing emergency arrangements that are clear, realistic and proportionate to their operational needs.

Priority actions include but are not limited to:

- ensuring workers' involvement and active participation;
- monitoring official weather forecasts and flood warning systems;
- defining responsibilities for emergency decision-making;
- establishing communication arrangements for workers and contractors;
- identifying evacuation routes and safe assembly points;
- designing and arranging practical measures that can be implemented before flooding occurs;
- providing workers with appropriate information and training.

Emergency arrangements should be tested periodically and reviewed after exercises or real flood events to ensure that they remain effective. For good practice, this should be performed collaboratively with local civil organisations and emergency services.

## ➢ Supporting safe response and recovery

Protecting workers during flood events requires organisations to respond promptly to changing conditions while ensuring that recovery activities are planned and carried out safely. The interviews demonstrated that stopping work when conditions become unsafe remains one of the most effective preventive measures available to SMEs.

During emergency response and recovery, employers should:

- prioritise worker safety over business continuity;
- restrict access to hazardous areas until they have been inspected;
- ensure that damaged buildings, electrical installations and work equipment are declared safe before use;
- recognise that clean-up activities involve specific occupational hazards requiring appropriate planning and supervision; and
- review emergency arrangements after each event and incorporate lessons learned into future planning.

Recovery should be regarded not only as a return to normal operations, but also as a valuable opportunity to strengthen organisational resilience and improve preparedness for future flood events.

# Protecting workers before, during and after floods

Practical measures that can help organisations prepare for flood events, protect workers during an emergency and support a safe return to work are presented here below.



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## ➢ Emergency planning and preparedness

Preparing before a flood event is the most effective way of reducing occupational risks and minimising disruption. Emergency planning should define how the organisation will respond if flooding threatens or affects the workplace, while allowing sufficient flexibility to adapt to changing conditions. This should be aligned with the established contingency plans of public emergency services (for example, the local police and the fire service), either locally or nationally, depending on the severity of the flooding event.

Emergency arrangements should be proportionate to the level of flood risk and integrated, where appropriate, into existing emergency procedures and business continuity arrangements.

In accordance with Article 8 of Directive 89/391/EEC, emergency arrangements should identify the workers designated to implement evacuation, first aid and other emergency measures. The number of workers, their training and available equipment should be appropriate to the size and specific risks of the organisation. Arrangements should also include the necessary contacts with external emergency medical, rescue and fire services.

Key elements include:

- ensuring the active participation, engagement and involvement of workers;
- identifying the roles and responsibilities of those involved in emergency management;

- establishing procedures for activating the emergency response;
- identifying safe evacuation routes and assembly points;
- maintaining up-to-date emergency contact details;
- identifying reliable sources of weather forecasts and official flood warnings;
- defining communication arrangements for workers, contractors and other relevant parties;
- designating and adequately training the workers responsible for implementing emergency measures; and
- establishing the necessary coordination and contact arrangements with external emergency medical, rescue and fire services.

Emergency plans should be communicated to workers and made readily available to those with responsibilities during a flood event.

Where appropriate, organisations should **test their arrangements** by involving or consulting workers, for example through **exercises or simulations**. These do not need to be complex. Even simple scenario-based discussions with workers can help identify weaknesses, clarify responsibilities and improve preparedness. Moreover, practical exercises, such as identifying access points or practising the correct donning of PPE, can greatly enhance workers' sense of involvement and improve their preparedness for emergency situations.

Emergency planning should also consider how work activities could be maintained or safely suspended if access to the workplace, utilities or essential services is disrupted.

Planning should be reviewed periodically, including after flood events or emergency exercises, to ensure that arrangements remain suitable and to reflect on lessons learned.

## ➢ Protecting workers during flood events

When flooding threatens or affects the workplace, protecting workers becomes the immediate priority. Decisions should be based on current conditions, recognising that flood situations can change rapidly and that hazards may increase within a short period.

Workers should not be exposed to unnecessary risks in an attempt to protect buildings, equipment or production. Where conditions become unsafe, work should be stopped and workers should be enabled to leave the affected area and proceed to a pre-identified place of safety, in accordance with the workplace emergency arrangements and any instructions issued by the competent authorities.

Where workers are exposed to serious, imminent and unavoidable danger, they should be informed as soon as possible of the risks involved and of the protective measures taken or to be taken. They should be able to stop work and/or immediately leave the workplace and proceed to a place of safety. Workers who leave a dangerous area under such circumstances should not be placed at any disadvantage because of their actions, in accordance with applicable national law and practice.

The measures implemented during a flood event will depend on the nature of the work, the characteristics of the workplace and the severity of the flooding. Typical measures include:

- monitoring official flood warnings and weather information;
- activating emergency procedures without delay;
- restricting access to flooded or potentially hazardous areas;
- suspending work where safe working conditions cannot be maintained;
- ensuring that workers can evacuate safely when required; and
- maintaining communication with workers throughout the event.

Where emergency response or essential work must continue, employers should ensure that workers have the necessary information, equipment and supervision to carry out their activities safely.

Particular attention should be given to workers involved in inspection, emergency response, or other activities that may require entry into affected areas. These workers may face simultaneous exposure to multiple occupational hazards, including contaminated water, unstable structures, damaged utilities and physically demanding work.

Access to buildings should be controlled when there are concerns about structural integrity, electrical safety or other hazards that could place workers at immediate risk. Work should not resume in affected areas until they have been assessed and declared safe by competent persons, where required.

Communication is essential throughout a flood event. Workers should receive clear instructions on the actions expected of them, changes to work arrangements, and any restrictions affecting access to the workplace. Contractors and other relevant parties should also be informed where appropriate.

Where PPE is required, it should be selected according to the hazards identified in the workplace risk assessment and used as part of a broader package of preventive measures. PPE should complement, rather than replace, other risk control measures.

As flood conditions evolve, employers should continue to review the situation and adapt their response as necessary to protect workers and maintain safe working conditions.

## ➢ Safe recovery and return to work

Recovery should begin only when it is safe to do so. Workers should not be required to resume work while there is still a serious and imminent danger, except in exceptional cases and for duly substantiated reasons. Returning to the workplace too early may expose workers to hazards that remain after floodwater has receded, including structural damage, contaminated environments, damaged electrical installations and unsafe work equipment.

Before normal work resumes, employers should verify that the workplace can be occupied safely. This process should be based on the findings of the workplace risk assessment and, where necessary, supported by competent persons with the appropriate technical expertise.

Priority should be given to:

- inspecting buildings and work areas for structural damage or other safety concerns;
- ensuring that electrical installations, machinery and work equipment have been inspected before being returned to service;
- identifying any remaining biological, chemical or physical hazards;
- verifying that access routes, emergency exits and welfare facilities can be used safely; and
- assessing whether utilities and essential services have been restored.

Clean-up and restoration activities often involve different hazards to those associated with normal work operations. Removing debris, cleaning contaminated areas, handling waste and restoring damaged equipment may expose workers to biological agents, hazardous substances, sharp objects, manual handling risks and slips, trips or falls. These activities should therefore be planned and supervised appropriately.

Where PPE is required, it should be suitable for the hazards identified and used together with other preventive measures. Safe systems of work remain the primary means of controlling occupational risks during recovery.

Recovery should also take workers' well-being into account. Some workers may have experienced damage to their homes, disruption to family life or other personal consequences of the flood event. Others may experience stress or fatigue associated with prolonged emergency and recovery activities. Where appropriate, organisations should provide information on available support and encourage workers to report concerns that could affect their health or safety.

A flood event provides an opportunity to review existing arrangements and identify improvements. Lessons learned during the response and recovery phases should be used to update the workplace risk assessment, emergency procedures and business continuity arrangements where necessary.

Recovery is complete only when work can resume under safe conditions and when the organisation is satisfied that occupational risks have been reduced to an acceptable level.

# Practical tools for flood preparedness

The checklist (Part A) and the practical guidance (Part B) included in this guidance are intended to help SMEs review their **level of preparedness** for flood events, identify areas where improvements may be needed and provide guidance to improve the areas identified.

The checklist (Part A) complements the guidance and information presented in this article and should be used as a practical self-assessment tool rather than as a simple tick-box exercise. The checklist is based on examples of good practice covering the main stages of flood preparedness, emergency response and recovery. For each of the areas covered by the checklist, the guidance (Part B) presents examples of good practice and the relevant sections and information reported in the guidance document.

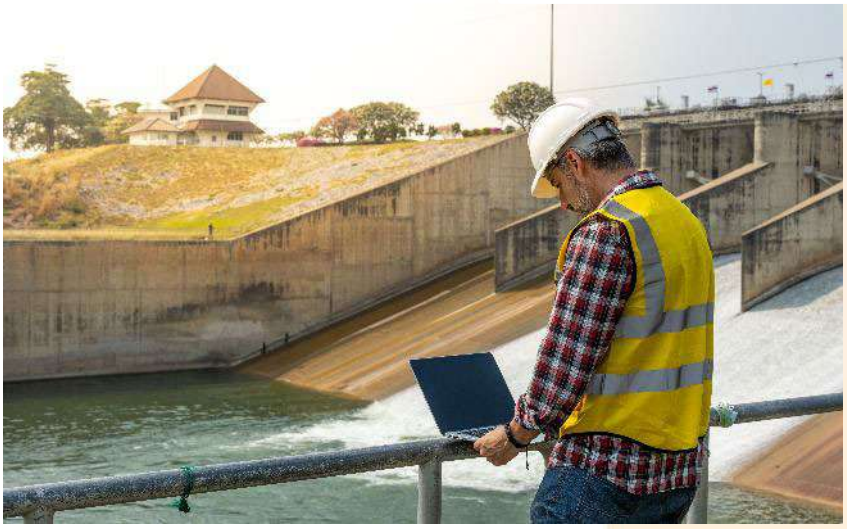
Not every statement is applicable to every organisation. SMEs should consider the characteristics of their workplace, the work activities carried out and the level of flood risk identified through the workplace risk assessment.



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## ➢ Part A - Self-assessment checklist

After completing the checklist:

- Review all statements marked **Partly** or **No** and identify additional preventive or preparedness measures to improve flood preparedness are needed.
- Priority should be given to measures that reduce significant risks to workers and support the continuity of essential work activities.
- The checklist should be reviewed periodically and after any flood event, emergency exercise or significant change affecting the workplace.

### *1. Risk assessment and preparedness*

| Good practice statement | Yes | Partly | No | Comments |
|---|---|---|---|---|
| 1.1 The organisation has identified whether the workplace is exposed to flooding. | □ | □ | □ | |
| 1.2 Flood-related hazards have been considered as part of the workplace risk assessment. | □ | □ | □ | |
| 1.3 The possible impact of flooding on workers, work activities and business operations has been assessed. | □ | □ | □ | |
| 1.4 Reliable sources of weather forecasts and flood warnings have been identified and are monitored when appropriate. | □ | □ | □ | |
| 1.5 Measures have been implemented to reduce the potential impact of flooding on workers and the workplace (for example, ensuring clean water availability). | □ | □ | □ | |

### *2. Organisation and emergency planning*

| Good practice statement | Yes | Partly | No | Comments |
|---|---|---|---|---|
| 2.1 Roles and responsibilities during flood events have been clearly assigned. | □ | □ | □ | |
| 2.2 Flood emergency procedures have been established and communicated to workers. | □ | □ | □ | |
| 2.3 Emergency contact arrangements are available and regularly updated. | □ | □ | □ | |
| 2.4 Business continuity arrangements have been established for essential work activities. | □ | □ | □ | |
| 2.5 Contractors and visitors are included in emergency arrangements where appropriate. | □ | □ | □ | |

## 3. Involvement, engagement, information and training

| Good practice statement | Yes | Partly | No | Comments |
|---|---|---|---|---|
| 3.1 Workers have participated in the implementation of flood-related emergency/contingency plans. | □ | □ | □ | |
| 3.2. Workers have agreed to all proposed measures. | □ | □ | □ | |
| 3.3 Workers have received information about flood-related occupational hazards. | □ | □ | □ | |
| 3.4 Workers know the emergency procedures and evacuation arrangements. | □ | □ | □ | |
| 3.5 Workers understand the hazards associated with inspection, clean-up and recovery activities. | □ | □ | □ | |
| 3.6 Training or emergency exercises have been carried out where appropriate. | □ | □ | □ | |
| 3.7 New workers receive information on flood emergency arrangements during induction. | □ | □ | □ | |

## 4. Emergency response

| Good practice statement | Yes | Partly | No | Comments |
|---|---|---|---|---|
| 4.1 Clear criteria, responsibilities and communication arrangements are in place to enable flood emergency procedures to be activated promptly when conditions require. | □ | □ | □ | |
| 4.2 Worker health and safety takes priority over protecting property, equipment or production. | □ | □ | □ | |
| 4.3. Arrangements enable workers to stop work and/or evacuate immediately to a pre-identified place of safety where a serious, imminent and unavoidable danger arises. | □ | □ | □ | |
| 4.4 Access to flooded or otherwise hazardous areas can be controlled. | □ | □ | □ | |
| 4.5 Workers can be informed promptly of serious and imminent risks, protective measures taken and actions expected of them. | □ | □ | □ | |

## 5. Recovery and return to work

| Good practice statement | Yes | Partly | No | Comments |
|---|---|---|---|---|
| 5.1 The workplace is inspected thoroughly before normal work resumes. | □ | □ | □ | |
| 5.2 Clean-up and recovery activities are planned and carried out safely (either externally or internally). | □ | □ | □ | |
| 5.3 Buildings, equipment and installations are inspected before being returned to service. | □ | □ | □ | |
| 5.4 Occupational hazards remaining after flooding are reassessed before restarting work activities. | □ | □ | □ | |
| 5.5 Workers' physical and psychological well-being is considered during the recovery phase. | □ | □ | □ | |
| 5.6 Workers are not required to resume work while a serious and imminent danger persists, except in exceptional cases and for duly substantiated reasons. | □ | □ | □ | |

## 6. Review and continuous improvement

| Good practice statement | Yes | Partly | No | Comments |
|---|---|---|---|---|
| 6.1 Flood events and emergency exercises are reviewed to identify lessons learned. | □ | □ | □ | |
| 6.2 Improvement actions identified after flood events or exercises are implemented. | □ | □ | □ | |
| 6.3 Flood emergency procedures are reviewed and updated periodically. | □ | □ | □ | |
| 6.4 The workplace risk assessment is reviewed following significant changes or flood events. | □ | □ | □ | |
| 6.5 Flood preparedness arrangements are reviewed regularly to support continual improvement. | □ | □ | □ | |

## ➢ Part B – Practical guidance

This section provides practical guidance to help SMEs improve the areas identified in Part A of the checklist. It is not intended to provide an exhaustive list of measures, but rather examples of good practice that organisations can adapt according to the characteristics of their workplace, work activities and level of flood risk. For each area, the objective of the measures and a key message are reported, along with links to the relevant sections of the guidance.

### *1. Risk assessment and preparedness*

**Objective**

To understand how flooding could affect the workplace and identify appropriate measures to reduce risks to workers and business operations.

**Examples of good practice**

- Identify whether the workplace is located in an area potentially affected by flooding using official flood hazard and flood risk maps.
- Review previous flood events affecting the workplace or the surrounding area.
- Consider both direct and indirect consequences of flooding, including disruption to utilities, transport networks and supply chains.
- Include flood-related hazards in the mandatory workplace risk assessment.
- Monitor reliable weather forecasts and official flood warning systems.
- Review flood risks periodically and whenever significant changes occur to the workplace or its activities.

**Key message**

**Understanding** exposure to flooding is the first step towards effective preparedness.

**Relevant sections of this guidance**

Main workplace and organisational impacts of flooding
Jobs and work activities most exposed to flooding
Factors influencing occupational flood risk
Workplace risk assessment

### *2. Organisation and emergency planning*

**Objective**

To ensure that responsibilities, communication arrangements and emergency procedures are established before a flood event occurs.

**Examples of good practice**

- Offer teleworking where applicable and possible.
- Assign clear responsibilities for emergency coordination.
- Establish flood emergency procedures appropriate to the workplace.
- Maintain up-to-date emergency contact details.
- Ensure workers know who to contact before, during and after a flood event.
- Include contractors and visitors within emergency arrangements where appropriate.
- Prepare business continuity arrangements for essential work activities.

**Key message**

Clear planning before a flood event reduces confusion and supports a faster and safer response.

**Relevant sections of this guidance**

Emergency planning and preparedness
Protecting workers during flood events

## 3. Involvement, engagement, information and training

**Objective**

To ensure that workers understand flood-related hazards and know how to respond safely before, during and after a flood event.

**Examples of good practice**

- Involve workers in the planning, application and reviewing of emergency plans.
- Provide online platforms with updated news and procedures, including signposting.
- Provide workers with information on flood-related occupational hazards.
- Explain emergency procedures and evacuation arrangements.
- Include flood preparedness as part of induction for new workers.
- Organise emergency exercises where appropriate.
- Ensure workers are involved in inspection, clean-up and recovery activities understand the associated hazards.
- Review information and training regularly to ensure it remains up to date.

**Key message**

Workers who understand the hazards are more likely to respond safely during flood events.

**Relevant sections of this guidance**

Main workplace and organisational impacts of flooding
Protecting workers during flood events
Safe recovery and return to work

## 4. Emergency response

**Objective**

To protect workers by implementing emergency arrangements promptly whenever flooding threatens or affects the workplace.

**Examples of good practice**

- Follow official flood warnings and instructions issued by the competent authorities.
- Ensure that workers can stop work and leave the affected area immediately where a serious, imminent and unavoidable danger arises.
- Evacuate workers before floodwater creates additional hazards.
- Identify prearranged places of safety and ensure that evacuation arrangements are consistent with instructions issued by the competent authorities.
- Restrict access to flooded or damaged areas.
- Maintain communication with workers throughout the emergency.
- Coordinate with emergency services where necessary.

**Key message**

Protecting workers must always take priority over protecting buildings, equipment or production.

**Relevant sections of this guidance**

Protecting workers during flood events

## 5. Recovery and return to work

**Objective**

To ensure that work only resumes once the workplace can be used safely and remaining hazards have been adequately controlled.

**Examples of good practice**

- Inspect buildings before reoccupation.
- Check electrical installations before they are re-energised.
- Inspect machinery and work equipment before use.
- Assess any remaining biological, chemical and physical hazards.
- Plan clean-up and recovery activities to minimise worker exposure.
- Provide appropriate support to workers affected by the flood event.

**Key message**

Returning to work safely requires a systematic inspection of the workplace and its remaining hazards.

**Relevant sections of this guidance**

Reviewing and documenting the workplace risk assessment
Safe recovery and return to work

## 6. Review and continuous improvement

**Objective**

To strengthen future preparedness by learning from flood events and regularly reviewing emergency arrangements.

**Examples of good practice**

- Review the effectiveness of emergency procedures after flood events or emergency exercises.
- Record lessons learned and share them where appropriate.
- Update the workplace risk assessment where necessary.
- Review business continuity arrangements.
- Update worker information and training after significant changes.
- Monitor changes that could affect future flood risks.

**Key message**

Every flood event provides an opportunity to strengthen future preparedness.

**Relevant sections of this guidance**

Reviewing and documenting the workplace risk assessment
Safe recovery and return to work