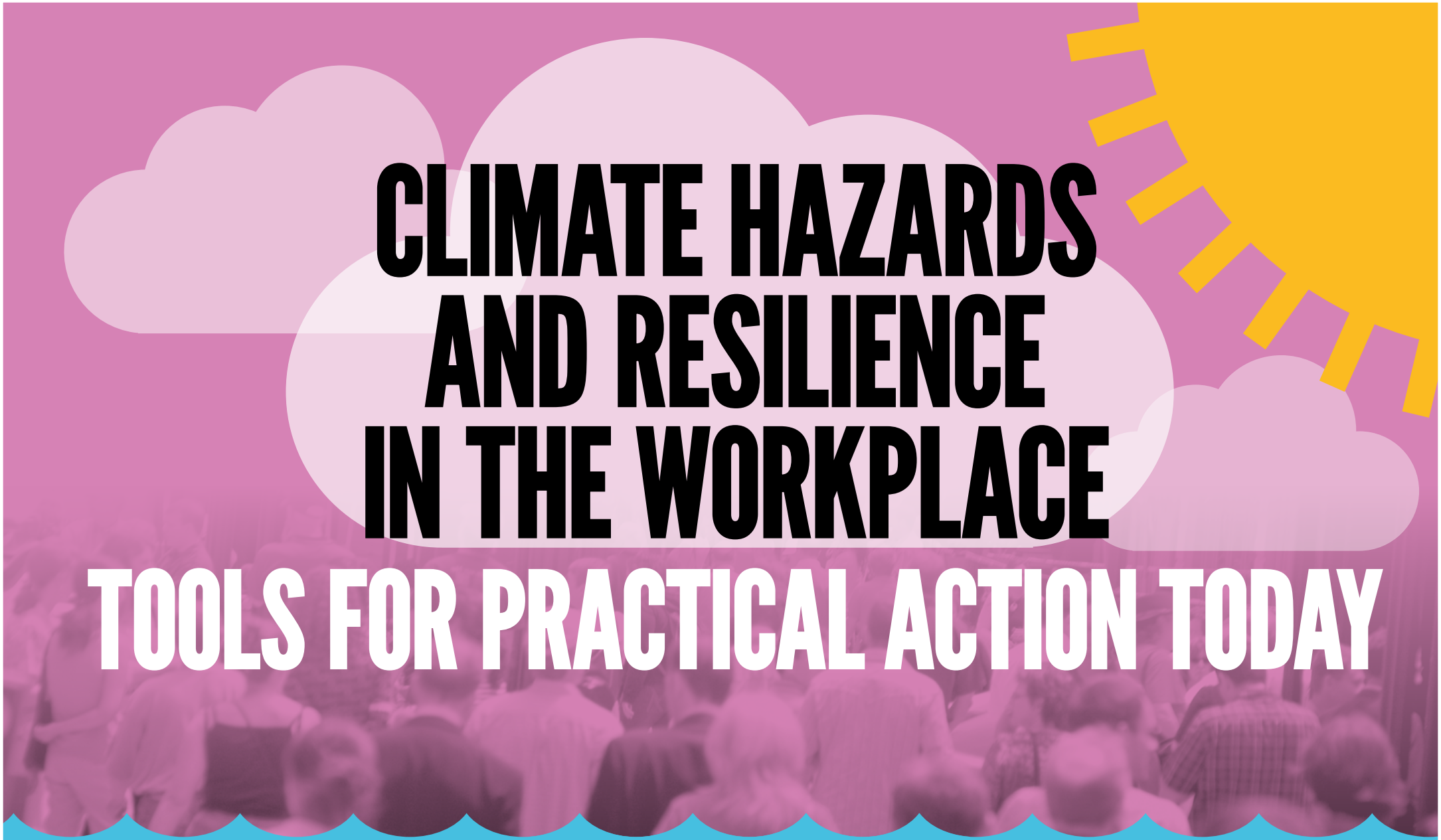


CLIMATE HAZARDS AND RESILIENCE IN THE WORKPLACE

TOOLS FOR PRACTICAL ACTION TODAY

A Workbook for Trade Unionists

Adaptation Scotland
supporting climate change resilience

STUC

UNISON Scotland

STATUS OF THE WORKBOOK

This workbook has been developed by the Adaptation Scotland programme in partnership with UNISON and the Scottish Trades Union Congress. The workbook is part of a wider set of climate resilience resources developed for Trade Unionists.

ACKNOWLEDGEMENTS

Trade union members from across Scotland provided valuable feedback to inform the contents of the workbook. Over 70 members participated in workshops and interviews, sharing their experience of severe weather and climate impacts and the importance of climate resilience for the TU movement. Their valuable feedback has made a significant contribution to this workbook and accompanying resources.

Adaptation Scotland is a programme funded by the Scottish Government and delivered by Sniffer Scottish Charity No SC022375, Company No SC149513. Registered in Edinburgh. Registered Office: Caledonian Exchange, 19a Canning Street, Edinburgh, EH3 8HE

AUTHORS

Catherine Payne, Fiona Montgomery, Steven Gray, Angela Heaney, Stephen Low, Ellie Murtagh, Eleanor Pratt and Anna Beswick

Version 1

Published April 2022

Design and layout: LBD Creative Ltd

© 2022. Contains public sector information licensed under the Open Government License v3.0 http://www.gov.scot/CrownCopyright

sniffer
knowledge brokers
for a resilient Scotland

Adaptation Scotland
supporting climate change resilience

Scottish Government
Riaghaltas na h-Alba
gov.scot

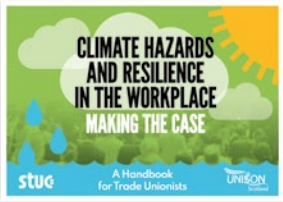
CONTENTS

PURPOSE

This workbook provides practical resources to work through to help TU members develop a strong climate resilience approach for their workplaces. It has been designed to help workers have a central voice in building resilience to climate risks and championing solutions which also tackle inequality and social justice.

RESOURCES

This workbook is part of a set of resources and support created for TU members. Visit **www.adaptationscotland.org.uk/how-adapt/tools-and-resources/climate-risks-workplace-protecting-workers-changing-climate** to access all the resources:



This workbook and the handbook and video presentations that accompany it, provide information to help union officers and reps in Scotland take action to protect workers from the unavoidable impacts of climate change and make their workplaces climate resilient. They are relevant for branch officials, health and safety reps, union learning reps and green champions and indeed anyone involved in the trade union movement.

HOW THESE RESOURCES WERE DEVELOPED

Recognising that climate impacts are already being experienced in Scotland's workplaces, Adaptation Scotland, and UNISON Scotland, working with other interested trade unionists, collaborated to deliver resources to help trade union reps to identify climate hazards in their workplaces, and to champion well-designed adaptation solutions that also help tackle inequality, social justice and other issues affecting workers. Views were sought from trade unionists from across Scotland, representing a diverse spread of sectors and industries via a series of online workshops and for those unable to attend online, their views were canvassed by electronic survey and telephone interview.

Over 70 TU members participated in workshops, surveys, and interviews, sharing their experience of severe weather and climate impacts and the importance of climate resilience for the TU movement. Their valuable feedback has made a significant contribution to this workbook and accompanying resources and we are indebted to them for their time, energy and insights.

To accompany this workbook there is a handbook which presents climate science, results of the latest national climate risk assessment, and illustrates why acting on climate hazards is a trade union priority today. The handbook presents a compelling case for action showing that building resilience to climate hazards also contributes positively to other aspects of the workplace such as health and safety, social justice, reducing inequalities and improving workers' health and wellbeing. To access this handbook and accompanying video resources visit www.adaptationscotland.org.uk/how-adapt/tools-and-resources/climate-risks-workplace-protecting-workers-changing-climate

1. CLIMATE RESILIENCE TOOLS FOR TRADE UNION MEMBERS

INTRODUCING CLIMATE RESILIENCE AND ADAPTATION

As the climate changes, impacts from changing temperature and rainfall patterns to more extreme weather events are already affecting Scottish workers. Our workplaces were not designed to cope with these new conditions and more frequent disruption, negative impacts on health and wellbeing and declining productivity are already being observed across sectors.

This handbook is designed to specifically support climate change adaptation and resilience – how we will cope with the unavoidable impacts of climate change that result from the greenhouse gases which have already been released into the atmosphere. This handbook does not cover climate change mitigation (the term which describes the need to reach net zero carbon emissions by cutting greenhouse gas emissions and carbon capture and storage), although it is important to remember that some of the best responses to climate change look to reduce emissions, capture greenhouse gases from the air and increase resilience and adaptation.

HOW TO USE THIS WORKBOOK

The tools included in this workbook are designed to be flexible and can be adapted to suit your context. To help pick which tools to use when, we have structured them around the following themes:

Where should we consider climate risks and prioritise adaptation action?

- Checklist 1. Who will be most vulnerable to climate risks?
- Checklist 2. Who may need support to increase their resilience?
- Checklist 3. Where is likely to be most at risk?
- Checklist 4. What is business critical / safety critical and must be protected at all costs?

What do we mean by adaptation and resilience?

The terms climate change adaptation and climate change resilience are related.

- **Adaptation is taking action to adjust to actual or expected climate and its effects such as overheating or increased flood risk. Adapting helps to reduce harm.**
- **Resilience refers to the ability to recover from the effects of climate change, for example the ability to recover after a landslide or flood event.**

These terms are both commonly used and are used interchangeably throughout the guidance.

For more detailed explanations of the terms adaptation and resilience see the latest Intergovernmental Panel on Climate Change Glossary https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_Annex-II.pdf

When should we consider climate risks and implement adaptation action?

- Checklist 5. When to consider climate risks and undertake resilience action
- Checklist 6. For after a near miss / climate related impact

How to undertake a climate risk assessment

- Checklist 7: Potential climate hazards
- Checklist 8: General questions for a climate change site walkaround
- Checklist 9. Questions by climate risk for a site identification walk around
- Table 1. How climate hazards might materialise into climate risks in different workplace settings
- Table 2. Example risk assessment output

Translating risks into resilience actions

To help you after you have undertaken a climate change risk assessment, in the next section **Making the workplace more resilient** there are some tools to help you translate climate risks into adaptation actions:

- Table 3 Adaptation actions for different climate hazards in indoor workplaces
- Table 4 Adaptation actions for different climate hazards in outdoor workplaces
- Table 5: Adaptation actions for different climate hazards in offshore workplaces
- Table 6: Adaptation actions for different climate hazards in home and hybrid work settings
- Table 7: Adaptation actions for different climate hazards in travelling work settings

Priority Actions for trade unionists

Different roles within the TU movement will be able to engage and lead on different aspects of climate resilience. A list of suggested priority actions are presented in the next section **Making the workplace more resilient:**

- Checklist 10. Priority actions for TU reps

WHERE SHOULD WE CONSIDER CLIMATE RISKS AND IMPLEMENT ADAPTATION ACTION?

It will not be possible to increase the resilience of an entire workplace or workforce simultaneously. For most organisations climate change action needs to be balanced against other risks and competing organisational pressures. Resource limitations mean that resilience action will need to be targeted.

Thinking about where we need to act first to make a workplace climate-safe depends on the sector, workplace setting and location.

For some workplaces it may make sense to target those who are already experiencing climate hazards in a negative way, those who have underlying vulnerabilities, or activities and locations that are most critical to the delivery of services. Asking the following questions is a useful starting point:

1. Who will be most vulnerable to climate risks?
2. Who may need support to increase their resilience?
3. Where is already experiencing weather-related impacts / damage?
4. What is business critical / safety critical and must be protected?

There are many factors which will exacerbate or reduce the threat from climate hazards to a particular workplace or group of workers.

Climate risks affecting locations or organisations up and down the supply or value chain can also have a big impact on essential activities. It is important to consider risks out with your organisation and identify key supply lines and any factors which could exaggerate vulnerability (such as Just in Time Delivery [JITD] and poor H&S training or enforcement).

While priorities may differ between organisations, the following checklists will help you to consider the questions above and how best to adapt the workplace/s that you represent:

Checklist 1. Who will be most vulnerable to climate risks?

Description	Is this relevant to my organisation?	If yes, which teams / locations / activities does this involve?
Frontline, low paid workers		
Vulnerable socioeconomic groups (the elderly, those living with disabilities etc)		
Emergency service workers who respond to crises and perilous incidents		
Outdoors, offshore and workers at height		
Workers who are already exposed to environmental / workplace challenges (such as poor thermal comfort, poor air quality, inadequate PPE)		
Those working with hazardous materials / processes		
High stress, time-pressured roles (such as health, social care workers or construction workers) where fatigue or poor weather could contribute to safety lapses or accidents		
People who work with vulnerable population groups – carers, and teachers for example, whose diligence at protecting their charges could inadvertently put themselves at risk		
Those working in poor quality buildings / poorly maintained workplaces which may struggle with maintaining thermal comfort and standing up to storm events		
Lone workers		
Those who work in or travel to/ through remote areas with poor digital connectivity and patchy mobile phone signal		
Hybrid workers whose precise location may not be known can be missed when it comes to accounting for staff after an incidence of extreme weather		
Workers in rapidly emerging industries (offshore renewables, hydrogen) where safety regulations may need to be updated in response to sector growth		
Staff working with people with mental health problems or addictions because of the difficulties that their clients may have in assessing risks and looking after themselves and those around them		
Workplaces reliant on long and complicated supply chains, Just in Time Delivery (JITD) or single source suppliers		
Workplaces with a poor H&S record indicating that climate risks may be inadequately managed		
Workers who travel who are vulnerable to extreme weather events directly, but also from fatigue and safety lapses linked to extreme weather events causing delays and extended shifts		
Public facing staff who are at risk of aggression and harassment where extremes of weather result in delays, cancellations, and other service disruption		

Checklist 2. Who may need support to increase their (climate) resilience?

Description	Is this relevant to my organisation?	If yes, which teams / locations / activities does this involve?
Low paid workers who may not have the resources to buy their own PPE or take other actions to protect themselves		
People in insecure employment or others who may be afraid of raising H&S concerns for fear of losing shifts or their job		
People who are responsible for many other people		
Workers who are marginalised or battling with other social justice problems and may not have the time, energy, or resources to respond to another challenge		
Home or hybrid workers living in rented accommodation who may not be able to make significant improvements to increase their home's resilience		
Workers for whom English isn't their first language or workers with literacy or numeracy challenges who may need tailored guidance		

Checklist 3. Where is likely to be most at risk?

This could be part of an individual building, a link in the supply chain, a whole site or a property portfolio.

Description	Is this relevant to my organisation?	If yes, which teams / locations / activities does this involve?
Sites or activities that are already experiencing weather related disruption or damages		
Sites or activities which rely on a 24/7 electricity and WiFi supply, and / or are in areas which have already proven vulnerable to supply interruption during extreme weather events like storms (which can indicate weakness in local infrastructure)		
Basement premises are most susceptible to flooding		
Single story premises with no safe access to loft or roof space can also be more vulnerable to flash flooding events, particularly if safe egress from the building is lost		
Conversions of old buildings into flats / smaller office units, heavily glazed buildings, newbuilds and lightweight industrial and retail buildings are most vulnerable to overheating		

Description	Is this relevant to my organisation?	If yes, which teams / locations / activities does this involve?
Flat roofed buildings can be severely impacted by heavy rain events with pooling water causing leaks, and potentially ceiling collapse		
Flat roofed properties with drainage that is ducted internally are vulnerable to flooding from guttering and downpipe failures / backing up. Look to see if drainpipes are external or ducted via internal conduits		
Top floor premises and attic conversions are most vulnerable to overheating, extremes of cold and wind damage		
Sites on the floodplains (or close by) and near to waterbodies can be vulnerable to flooding from these sources		
Locations close to the coast, firths and estuaries will be most at risk from sea level rise and storm surges		
Anywhere can be at risk from surface water flooding (which happens when cloudbursts overwhelm drainage systems), but some locations are especially vulnerable: • In heavily built-up areas without greenspaces to absorb runoff, • Close to blocked or poorly maintained watercourses, • At the bottom of a hill, or • At the confluence of several streets can be especially at risk because in these instances roads can act as watercourses • See the flood maps produced by the Scottish Environment Protection agency (SEPA) https://www.sepa.org.uk/environment/water/flooding/flood-maps/		
Poorly maintained buildings are less able to withstand extreme wind and rainfall and more likely to suffer structural damage (with implications for those inside and in the immediate environs outside)		
Buildings of a lightweight construction (for example prefabs, single masonry skin buildings and metal industrial or commercial units) are more susceptible to wind damage and can suffer from uncomfortable internal temperatures in both hot and cold weather conditions		
Ornate or historic buildings can be vulnerable to freeze thaw erosion and wind damage putting those nearby at risk of falling masonry		
Climate hazards do not have to occur nearby to have a serious impact. Extreme weather events occurring hundreds of miles away could have an impact if supply chains, supporting infrastructure or travel is affected		

Checklist 4. What is business critical / safety critical and must be protected at all costs?

Description	Is this relevant to my organisation?	If yes, which teams / locations / activities does this involve?
Staff welfare facilities		
Telecoms and essential services (gas, water, drainage, electricity)		
Servers and other essential IT equipment		
Areas occupied by vulnerable groups – schools, nurseries, care homes, hospitals for example		
Pharmacies and other stores of perishable, essential and / or expensive materials		
Transport routes and services including road, rail, buses, ferries and air travel		
Any area or room designated as an emergency refuge or essential for emergency / continuity operations		
Hazardous materials		
Safe egress routes from sites / buildings including disabled access routes		

WHEN TO CONSIDER CLIMATE RISKS AND IMPLEMENT ADAPTATION ACTION?

As well as considering where and who needs to adapt to climate change, we also need to think about *when* action should be taken. Climate resilience makes financial sense for any organisation but gaining maximum buy-in from management and budget holders, and achieving the biggest wins is often a matter of timing.

While climate resilience is, by and large, not rocket science; it can be difficult and costly to retrofit. For example, instead of attempting to retrofit existing buildings to improve natural ventilation or resizing drains underneath existing buildings; it would be easier and cheaper to consider resilience at the design stage or when undertaking a major refurbishment. Even 'soft adaptation' such as changing work practices can be difficult if we are trying to change the way that things have 'always been done'.

Some of the best times to undertake a climate risk assessment or consider increasing resilience by implementing climate change adaptation are presented in the checklist below:

Checklist 5. When to consider climate risks and undertake resilience action

Description	Is this relevant to my organisation?	If yes, when, and where?
When relocating or refurbishing premises		
After an incident or near miss in your organisation, or in a similar organisation (i.e., same sector, a nearby building) has raised awareness of vulnerabilities – note that this does not necessarily need to be a weather-related incident		
When having to make changes to meet other legal requirements (for example achieving net zero or complying with access standards). Scheduling works together will minimise disruption and allow benefits to be maximised		
When in industrial negotiations with employers: • relating to changes to T&C such as shift patterns, contractual terms regarding designated places of work, provision of respite facilities • using pay settlement negotiations to push for better PPE provision it is important to consider how the climate might change and make sure that what is agreed is future proofed to accommodate the impacts		
When updating risk registers, emergency plans, and organisational policies (i.e., remote working policies, solo working policies or work method statements)		
When new processes / protocols / ownership / management is being put into place		
New staff inductions are ideal times to raise the issues of climate risks, near miss reporting and resilience and foster a working culture where employees feel empowered to identify and report potential safety concerns		
Training new and existing staff is an ideal opportunity to raise their awareness of local implications of climate change, and what they can do to help protect themselves and their colleagues or clients		
When ordering plant, vehicles, PPE, telecoms or when divesting, is a good point in time to consider – will these decisions increase risk in the future?		

WHEN TO REPEAT A RISK ASSESSMENT OR CONSIDER CLIMATE RISKS AFRESH

Adaptation is an ongoing process. Adaptation is going to be something that Scotland's workplaces will learn by doing and iterative learning will be needed after extreme weather events and near misses. Risk assessments will need to be regularly repeated to reflect workplace changes and as climate change impacts progress.

After every significant near miss or weather incident, it is important to create a no-blame space where stakeholders can consider important questions honestly. Using a standardised checklist to normalise risk assessment after incidents or near misses, and where the identity of contributors is protected, can be one way to do this:

Checklist 6. For after a near miss / climate related impact

Question	Answer
Incident location:	
Incident date:	
Weather conditions:	
What happened?	
Where is organisational resilience or vulnerability dependent on the actions of, or systems controlled by external bodies?	
What did the event reveal about cascading risks (i.e., an impact in one area which causes serious knock-on impacts elsewhere or to other systems)?	
What were the financial consequences of this event / impact? Were these recorded / attributed? Was insurance available?	
Is there an issue with critical activities being sited in a vulnerable location (e.g., servers in a basement)?	
Are there other factors which might compound risks (e.g., buildings without openable windows)?	
Where are there pinch points or bottlenecks in essential systems, stock storage and supply chains?	
Where there any mitigating or extenuating circumstances that made the incident better or worse than it otherwise might have been?	
What could have happened (in a reasonable worst case)?	
What needs to change to protect workers and other people in the future?	

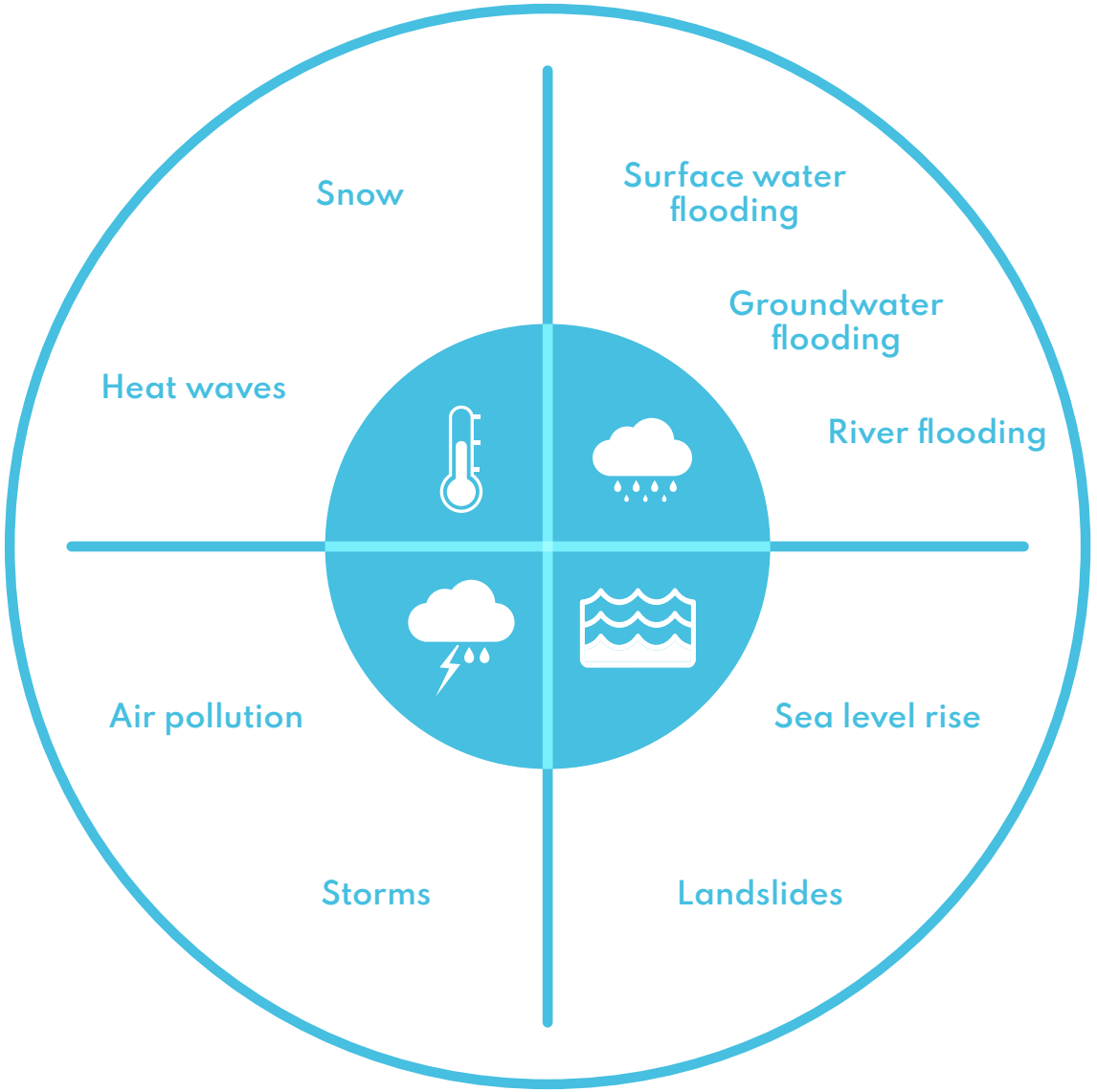
HOW TO UNDERTAKE A CLIMATE RISK ASSESSMENT

Climate risk assessments may be strategic, evaluating climate risks across your organisation or key services / asset portfolios or they may be project-level, examining climate risks in relation to a specific action, project, or asset.

Detailed guidance
Adaptation Scotland has produced risk assessment guidance that can help organisations to apply the UKCCRA (UK Climate Change Risk Assessment) risk assessment method at a variety of scales. https://www.adaptationscotland.org.uk/how-adapt/tools-and-resources/climate-change-risk-assessment-guidance-tools

What climate hazards / future scenarios should be considered?

Organisations need to consider future climate scenarios for both climate change mitigation and adaptation. For mitigation workplaces need to consider how they will reach net zero so that global average temperatures stabilise at 1.5˚C above preindustrial averages, and how legislative changes made to reach net zero will impact on how they operate. For adaptation we should consider reasonable worst case climate



impact scenarios which envisage temperatures rising 4˚C+ over this century. We can think of this as hoping for the best and planning for the worst.

The weather event diagram shows nine common climate hazards that could affect workplaces across Scotland. Picking some or all the hazards on this diagram is a good basis for a risk assessment.

The choice can be based on weather events that have hit your area in the past or the events that would affect your workplace the most if they were to happen. Alternatively, you could select two or three from the more comprehensive list below. Try to find the most relevant hazards to discuss in your assessment depending on the type of workplace and the location of your site.

How these climate hazards will impact on a workplace depend on many different factors including age and upkeep of the premises, local topography, occupancy of the buildings, nature of the workplace i.e., indoor, or outdoor setting, robustness of health and safety and risk management practices, and the type of activities that take place, so it is hard to directly link a hazard to generic impacts.

Checklist 7: Potential climate hazards

- Air temperature increase
- Extreme temperature / Heatwaves
- Extreme cold
- Changes in extreme rainfall
- Average /maximum wind speeds
- Humidity
- Solar radiation
- Relative sea level rise
- Seawater Temperature
- Water availability / drought
- Storms
- Flooding (coastal and fluvial)
- Ocean PH
- Dust Storms
- Coastal erosion
- Soil erosion
- Soil salinity
- Air Quality
- Ground instability/ subsidence/landslides
- Urban Heat Island
- Growing season

Climate impacts may result from one type of weather event, or they can arise because of multiple climate hazards occurring simultaneously or in short succession. So, for example, trees are more likely to be uprooted if there are strong winds after a period of very heavy rain resulting in waterlogged soil, or if strong winds come from an unusual direction.

Furthermore, impacts are not always physically tangible – workplaces which have experienced accidents, financial losses or other impacts arising from climate hazards can also experience poor morale, and increased anxiety and stress for workers.

In addition to material damage and physical injuries natural disasters can cause significant trauma and leave people struggling to rebuild their lives for years after. It is estimated that as many as 15-25% of people impacted by natural disasters and severe weather events go on to suffer from post-traumatic stress disorder (PTSD); which can result in long-term impacts on mental health[1]. In the UK flood victims are nine times more likely to suffer with mental health issues compared to the general population[2].

1 https://www.scientificamerican.com/article/the-trauma-after-the-storm/

2 https://www.theguardian.com/environment/2020/dec/30/we-dont-sleep-when-its-raining-the-mental-health-impact-of-flooding

Here are some examples of how climate hazards might materialise as climate risks in different workplace settings:

Table 1. How climate hazards might materialise into climate risks in different workplace settings

Workplace type	CLIMATE HAZARD					
	Rainfall / flooding	Extreme heat and extreme cold	Snow and ice	High winds / storms	Drought	Subsidence and landslides
Indoor	Water ingress into buildings Water damage, in severe cases leading to structural failures H&S impacts and PTSD Access problems Evacuation Interruption	Overheating Hard to heat spaces Reduced productivity H&S impacts Higher rates of illness and absenteeism Cessation of work if minimum temperature crossed	Difficulty travelling to work Slips, trips, and falls Road accidents H&S impacts School closures – absenteeism Power cuts Interference with microwave data links from falling snow	Difficulty travelling to work H&S impacts and PTSD Power cuts including loss of heating, lighting, cooking, water supplies, wifi and comms School closures – absenteeism Interference with microwave data links from heavy winds Evacuation Building damage Treefalls damaging buildings and disrupting access	Low water pressure Premises reliant on private water supplies and boreholes may need bottled supplies	Damage to buildings and contents H&S impacts and PTSD Evacuation Interruption

Workplace type	CLIMATE HAZARD Rainfall / flooding	Extreme heat and extreme cold	Snow and ice	High winds / storms	Drought	Subsidence and landslides
Outdoor	Waterlogging Delays Damage to materials and stores Exposure Reduced productivity H&S impacts Access problems / workers stranded Exposure to sewerage and waterborne toxins	Sunburn and heatstroke Hypothermia Fatigue contributing to safety lapses Lower compliance with PPE Reduced productivity Some activities delayed (e.g., foundation pouring)	Slips, trips, and falls Difficulty in groundworks and excavations Interruption of scheduled activities Staff time spent on snow clearance and gritting Accidents Access problems / workers stranded Difficulty travelling to site	Damage to stores Treefalls damaging buildings and disrupting access Flying debris Structural damage to nearby buildings Difficulty travelling to site Unsafe to work at height H&S impacts and PTSD Comms disruption	Some activities delayed (i.e., groundworks) Hosepipe bans Irrigation and abstraction limits affect water intensive activities Low water pressure makes some activities more time consuming	Site damage H&S impacts Evacuation Interruption
Offshore	Heavy rain can ground helicopters and paralyse radar and comms Heavy rain can also make over the side activities more difficult H&S impacts Interruptions	Accommodation modules rely on air conditioning Power cuts can make accommodation modules unbearably hot or cold Prolonged polar lows impact helidecks leading to longer periods of isolation Lower compliance with PPE	Working conditions more challenging Slips, trips, and falls Travel to and from offshore suspended	Over the side activities suspended Power-cuts and blackouts Travel to and from offshore suspended Supply vessels unable to dock Catering impacted Trigger lightning grounds helicopters	n/a	n/a

Workplace type	CLIMATE HAZARD Rainfall / flooding	Extreme heat and extreme cold	Snow and ice	High winds / storms	Drought	Subsidence and landslides
Home or hybrid work **(In addition to the risks identified in the indoor section above)**	Difficulty pinpointing workers location in an extreme event Power cuts Loss of remote connectivity	Higher energy costs Fuel poverty	Slips, trips, and falls H&S risks travelling between work settings Comms disruption	H&S risks travelling between work settings Power cuts Loss of remote connectivity Isolation Comms disruption Building damage Treefalls damaging buildings and disrupting utilities	n/a	Difficulty pinpointing workers location in an extreme event Loss of remote connectivity if cabling impacted
Travel	Extended travel times Delays and diversions Exposure Reduced productivity H&S impacts Access problems / workers stranded Fatigue contributing to safety lapses Road accidents Difficulty locating workers in an extreme event	Interruptions to train services Fatigue contributing to safety lapses Higher fuel costs (heating and AC in vehicles) Lower compliance with PPE Reduced productivity H&S impacts Heatstroke Hypothermia	Working conditions more challenging Slips, trips, and falls Extended travel times Exposure Reduced productivity H&S impacts Access problems / workers stranded Fatigue contributing to safety lapses Road accidents	Comms disruption Tree throw Travel routes blocked Falling masonry Extended travel times Road accidents Public transport suspended Some workers must walk	Working conditions more challenging H&S impacts	Buckling tracks Road/embankment movement / subsidence Travel delays H&S impacts Evacuation Interruption

UNDERTAKING A RISK ASSESSMENT VIA A WALKAROUND

Site walkarounds are highly recommended in all workplaces because in many instances this is the best way to detect risks and underlying vulnerabilities. A site walkaround should not be a one-off event, rather it is an activity that should be undertaken regularly to spot emerging risks and the integrity of protection measures (such as drainage or ventilation) needed to protect workers from climate hazards.

The effectiveness of a site walkaround can be enhanced by:

- Undertaking them at different times of year, different times of the day, and in different weather conditions so that memories are fresh and different conditions are apparent
- Attending with local staff (including the facilities management, estates, maintenance teams as well as staff and contractors). It may be that several visits need to be undertaken if you think that some parties may not feel able to respond openly if more senior staff are present.
- Considering a full range of climate risks (linking back to historic weather extremes that staff may remember can be helpful)
- Making notes but assuring those that are confiding in you that their views will be anonymised to prevent attribution where possible,
- Stimulating conversation with prompts and hypothetical scenarios and
- Using a standardised way of recording observations.

It is helpful to explain to site staff about the type of climate risks that Scotland may experience and how these impacts are likely to get worse as climate change progresses. You could follow this with some general questions from the checklist below:

Checklist 8: General questions for a climate change site walkaround

	Question
1	Have you noticed any changes to the frequency and / or severity of extreme weather events or weather-related disruption?
2	What do you do now to cope with rainfall / flooding / extreme heat / extreme cold / snow and ice / high winds / storms / droughts?
3	Will existing risk management / health and safety protections be enough to cope with the changes projected? If not, how could resilience be reinforced?
4	What happens if staff can't get to site?
5	What happens if staff can't travel safely?
6	How long could the site function without delivery of key supplies?
7	Who are your key suppliers upstream and downstream (think about essential supplies and services), have they ever been affected by weather related disruption?
8	Thinking about clients and those who use your services, how might they be affected by climate impacts? What would that mean for demand and your ability to meet their needs?
9	Are there any weather-related thresholds that mean that activities are suspended i.e., wind speeds and working at height?
10	What back-up systems do you have in place to cope with interruption to essential infrastructure i.e., energy, fuel, catering, telecoms, internet, and water supplies?
11	Do you have emergency / business continuity / evacuation plans in place for serious incidents? If so, how would these be used in an extreme weather event?
12	How regularly are inspections carried out?
13	Are any staff first-aid trained? Where are first aid supplies stored?
14	Is weather data used for planning activities (i.e., heating, gritting)? If so, where do weather warnings come from and how are they conveyed to staff?
15	Are staff broadly happy with the facilities and buildings or are there known issues with thermal comfort and other factors which could be exacerbated by weather?
16	Are there any weather conditions which would warrant buildings being closed and work suspended?
17	How has the workplace coped with extremes in the past (think about recent events which might trigger memories i.e., Beast from the East, Storm Arwen etc, heatwave of 2018)?
18	Has the site previously experienced any incidents resulting in injuries, disruption, or damage because of extreme weather, flooding or fire?

While the suggestions above are general questions that you should ask local staff on a walkaround, the checklist below provides ideas for more specific questions and things to look out for to understand more about how a workplace could be affected by specific climate hazards:

Checklist 9. Questions by climate risk for a site identification walk around

Climate hazard	Questions to ask	What to look out for
 Rainfall / flooding	• Where does water gather onsite? • Has any part of the site flooded before? • What is kept in basements? • How do the drains cope in heavy rains? • Where is the nearest water course / water body (this could include the shore)? • Is there evidence of damp or water penetration within the building today? • Are staff provided with protective raingear / wet weather clothing? • Does heavy rain or flooding interrupt activities / or affect workload? • Is there an emergency plan for if flooding occurred onsite? • What would people do if flooding happened? • Are culverts, guttering and drains regularly maintained and cleared of obstructions?	• Puddles • Blocked drains and culverts • Broken drainpipes and guttering • Plants growing in guttering • Cracks to mortar or damaged render • Green water stains on buildings • Flat roofs • Cracked windows, swollen woodwork • Damp patches and mould • A site that is on low ground compared to its surroundings • Sites at the bottom of a hill or a confluence of streets • Heavily built-up areas without greenspace to absorb run-off • Downpipes that are ducted internally • Essential materials, facilities, or supporting infrastructure located in low lying parts of the site

Climate hazard	Questions to ask	What to look out for
 Extreme heat and extreme cold	• Which rooms overheat today? • Which rooms are hard to heat today? • What resilience measures are in place today to keep the workplace at a comfortable temperature? • Can staff adjust temperature settings in the building? • Do the windows open? • If staff wear uniforms or PPE how does this fare in hot or cold weather? Are there different options? • Do staff ignore PPE requirements in extreme heat? • Are any activities already uncomfortable in hot or cold weather? • Are any materials or fuels used which struggle to perform in high or low temperature conditions or which must be stored at specific temperatures? • Do staff breaks coincide with the hottest / coldest point of the day? • Are there any temperatures above or below which work is suspended? • Are staff encouraged to wear layers? • How do clients and other stakeholders fare in temperature extremes? • Do temperatures affect the workload? • What facilities are provided to help staff cope in temperature extremes?	• South facing buildings • Lots of glazing • Lightweight and poorly insulated metal retail or light industrial buildings • Attic premises and workplaces in converted buildings • Newbuild premises • No shutters or blinds • Staff using their own electric fans – can indicate overheating and fan heaters can indicate underheating • Buildings with large cargo doors / vehicular access are hard to keep at a comfortable ambient temperature • Old heating systems • Water fountains • Vending machines • Ability to make hot drinks and hot food • Safe storage for food in hot weather • Cool rooms • Drying rooms

Climate hazard	Questions to ask	What to look out for
 Snow and ice	• Who clears snow and grits pavements? • How are slips, trips and falls reported? • Where do most slips, trips and falls occur on this site? • What systems are in place for gritting and snow clearance? • Where is cleared snow piled? • What about rapid thaw? • Could snow piles thawing result in flood impacts on your building or neighbouring buildings? • What about neighbouring properties, could a thaw from their site flood you? • How do we keep car parks and buildings open? • What happens if staff can't get to site?	• Sites which don't have space for storing cleared snow • Sites where pedestrian access is steep or via external stairs • Polished stone flags and other outdoor surfaces which become very slippery when wet or icy • Site topography • Tall infrastructure which could result in ice throw
 High winds / storms	• What is the prevailing wind direction? How exposed is the site to prevailing winds or other directions? • Is the site reliant on microwave links for internet / other data? • Are there stockpiles of loose materials which could cause dust nuisance in high winds? • Are rooflines, chimneys, guttering and rainwater goods regularly maintained? • Are rooflines, chimneys, and other features on neighbouring properties in good condition? • How do storms impact workloads? • What systems are in place to keep staff safe in very high winds? • Are there any activities which must be suspended in high winds / stormy conditions? • Is the workplace in an exposed location or close to trees or structures which could be vulnerable to high winds?	• Chimney pots, aerials, satellite dishes, loose slates, and tiles • Items stored on roofs • Items stored outside (i.e., under tarpaulins) • Tall infrastructure including overhead cables • Scaffolding and cranes • COVID awnings / gazebos • Advertising hoardings • Cladding • Large expanses of glazing • Look at neighbouring properties too because objects can be blown some distance • Trees within topple distance of buildings, carparks, and access

Climate hazard	Questions to ask	What to look out for
 Drought	• How would activities cope with a drop in water pressure? • Are any activities water intensive? • Have water supply or water quality issues been a problem in the past? • Is the site reliant on boreholes for its water supply? • Is the site reliant on a private water supply? • Do grounds and landscaping require water intensive maintenance?	• Landscaping / gardens • Drought resistant planting • Water butts • Rainwater recycling • Greywater recycling • Water efficient / water conservation equipment • Water storage
 Subsidence and landslides	• Is the site close to mine workings? • Is there evidence of ground movement, landslips, or mud slides nearby? • Is the workplace built on clay soil or reclaimed land? • Do buildings have cracks? • Is the workplace near slopes or embankments? • Is slope stability monitored or assessed in any way?	• Distance from workplace to slopes and embankments • Proximity of slopes and embankments to key access routes • Evidence of subsidence • Evidence of erosion and ground movement on slopes

HOW TO SCORE CLIMATE CHANGE RISKS

Having undertaken a site walkaround it is important to document the most serious risks and the consequences that could happen if they were to occur. When considering which risks are most important, consider their potential consequences for health and safety, finance, reputation, or the ability to deliver core functions. Then consider the likelihood of those risks occurring, the impact on your organisation if they were to occur and document them.

Detailed guidance on recording and scoring the results of climate change risk assessments can be found at: https://www.adaptationscotland.org.uk/how-adapt/tools-and-resources/climate-change-risk-assessment-guidance-tools

There are also examples of different risk assessment templates and screening tools suitable for a range of different project types, workplace settings and scales of operation.

A simple example is given below:

RISK	CONSEQUENCE	LIKELIHOOD	IMPACT
What is the risk – i.e. the risk to a certain asset or function from a hazard. E.g. Risk of damage to buildings from flooding	Describe / list the key things that could happen as a result. E.g. - Reduced access - Cost of repair - Loss of productivity	(H/M/L) or 1-5	(H/M/L) or 1-5

For most organisations it makes sense to use the same scoring conventions and risk matrix as is used to score other risks on corporate or site risk registers. Speak with colleagues who are responsible for risk management and other types of risks and where possible make use of systems that are already in place. It is especially important to use the same scoring assumptions for consequences and likelihood so that climate risks can be directly compared with other risks on the risk register.

After a summary discussion of the potential effects of the hazards, take some time to discuss the extent to which you're able to manage the hazards, what action you can take and the consequences of these. This should also include a consideration of the relationships with other stakeholders who may be able to help realise your aspirations or who could be adversely affected.

How to record what you find

There are various ways to do this, but it is important to use a consistent system for all assessments which records:

- Where was assessed?
- Who undertook the assessment?
- The risks that were considered
- The weather conditions at the time
- How you have scored the risk in terms of likelihood of it happening, and the consequences
- Existing measures to manage the risk
- Suggestions for how these adaptation measures should be improved.

The output of the site walkaround and risk assessment could use a format like this for example:

Table 2. Example risk assessment output

Location	Risks assessed	Consequences	Likelihood score	Impact score	How is this risk managed today?	Further adaptation action needed
Primary 1 classroom	Overheating during summer and early autumn term	Pupils concentration suffers – especially in the afternoons, children can be disruptive. Negative health outcomes have arisen.	5	2	Staff use their own electric fans and prop open fire doors to help keep youngsters cool	Insulated blinds, deciduous shrubs / trees could be planted to the south of the large windows to provide seasonal shading, when replacing windows fit triple glazed units which can be opened and secured in an open position

2. MAKING THE WORKPLACE MORE RESILIENT

The previous sections have demonstrated why climate change adaptation is an issue that trade unions are acting on today, learning lessons from past crises about the need to take timely, evidence-based action to adapt to future climate shocks and stresses, and how to spot climate risks and underlying vulnerabilities in the workplace.

This section builds on the case for action and highlights the principles which underpin good adaptation and how to create adaptation and resilience solutions which will help to achieve other trade union objectives. There is advice on how to build support for adaptation to help persuade colleagues to support or get involved with practical activities (such as assessing risks and identifying actions), and guidance on how to design responses to climate risks that:

- Support the just transition
- Maximise cobenefits
- Support climate justice, and
- Are guided by principles of good adaptation

Adapting to climate change has two aspects:

1. **Adapting to present climate and weather**
2. **Making changes based on future projected changes in the climate**

Adaptation is an ongoing process.

FRAMING AND DESIGNING ADAPTATION IN A WAY WHICH BUILDS SUPPORT

Just transition

> ***"People want to leave the world better than they found it. When people say that climate change is fake news it boils down to basic psychology – its self-defence. No one wants to think that our years of hard graft (in carbon intensive sectors) which we did to try to make life better for our kids, has actually damaged their future. Green jobs offer a real sense of satisfaction and wellbeing, I want that for my kids. We all want to hand on a better future for our kids, don't we?"***

It is important when developing adaptation plans to increase the resilience of a site, organisation, or location that efforts do not widen existing inequalities and that marginalised communities and people living and working in carbon intensive sectors are brought into the conversation. It is also important to select adaption options which will help an organisation to contribute to the Just Transition and which do not increase greenhouse gas emissions.

Careful messaging is needed to ensure adaptation is inclusive and does not alienate potential allies. While it is important to be positive about what can be achieved with well-designed adaptation, we must be sensitive to others who may be experiencing climate anxiety or grieving an occupation or way of life that is changing. Compassionate collaboration from other sectors of the trade union movement can help with this and all trade unionists need to be considerate in how they frame their adaptation and decarbonisation messaging.

Maximising cobenefits

Adaption actions which provide multiple cobenefits and help tackle existing problems in the workplace will find it much easier to gather support. Actions which help adapt to climate change as well as tackling COVID-security (for example by supporting

hybrid working, ventilation and social distancing requirements), are likely to be well received at this moment in time. As other issues arise in the workplace, it is helpful to consider how we can design adaptation actions to make progress on any such emerging issues.

It is important that we also consider actions to increase workplace resilience to climate impacts which support biodiversity (by looking for nature-based solutions if possible) and cut carbon emissions. While trying to solve multiple problems at once feels daunting – it can be done by changing our thinking to consider what other benefits our actions can have if we design them right. For example:

1. retrofitting workplaces with openable windows is a triple win which:
   a. reduces the overheating risk posed by climate change,
   b. improves indoor air quality and COVID-security and
   c. cuts carbon emissions by removing the need for air conditioning or electric fans.

2. Similarly providing a greenspace for outdoor meetings and break times can be a quadruple win:
   a. it can store surface-water run-off from downpour events reducing flood risk
   b. provide a tranquil space to relax improving staff wellbeing
   c. allow space for outdoor and walking meetings improving COVID-security
   d. encourage biodiversity if planted with native species and managed with wildlife in mind.

3. Planting deciduous trees and shrubs to the south of major glazing to provide green shading:
   a. Prevents overheating in summer
   b. Allows natural solar gain to warm buildings in the winter (reducing reliance on heating systems reducing carbon emissions)
   c. Captures carbon from the atmosphere
   d. Has benefits for wildlife
   e. Reduces flood risk
   f. Makes workplaces more pleasant for workers – reduced glare, increased thermal comfort and pleasant views.

4. Providing showers for staff:
   a. Support carbon emission cuts by encouraging workers to commute in an active way
   b. Cuts workers commuting costs
   c. Helps support workers health and wellbeing by encouraging them to walk or cycle to work
   d. Helps workers who have commuted on foot or bike to warm up or cool down if the weather is bad.

5. Updating PPE to be more appropriate for new weather conditions and changing policies and plans to accommodate new weather extremes:
   a. By using insights from frontline staff and caring about their health and safety – workers feel they are listened to
   b. Improves morale
   c. Helps to protect staff (which in turn protects management from litigation),
   d. Is good corporate social responsibility (CSR)
   e. Helps to retain workers
   f. Could reduce future insurance claims and premium costs for employers too.

It is important to try to quantify multiple benefits when making the business case for action.

Making the business case for action

The economic case for adaptation is very strong. The UK Climate Change Risk Assessment (UKCCRA3) notes that acting now to address climate change risks such as flooding, will be cheaper than waiting to deal with the consequences. The assessment found that every pound invested could typically result in net economic benefits worth £2 to £10. Early action makes it much more likely that risks can be managed effectively and typically has much larger benefits than delaying action until after an impact has occurred. The cost benefit analysis of adaptation action is even more positively weighted in favour of early action when co-benefits are considered.

The UKCCRA3 notes that "Irreversible impacts are occurring (today) that might have been avoided or reduced if greater adaptation measures had been taken."

Climate justice

Climate justice is about addressing the disproportionate burden of climate change impacts occurring on poor or marginalized communities. Different ways to consider climate justice in adaptation action, relate to:

- Distributional justice: How policy and practice responses to climate change could exacerbate inequalities further?
- Procedural justice: Who is involved in decision making processes?

To accompany this workbook there is a handbook to help you make a compelling case for action showing that building resilience to climate hazards also contributes positively to other aspects of the workplace such as health and safety, productivity, social justice, reducing inequalities and improving workers' health and wellbeing. To access this handbook and accompanying video resources www.adaptationscotland.org.uk/how-adapt/tools-and-resources/climate-risks-workplace-protecting-workers-changing-climate

It is important that both aspects of climate justice are considered when developing an adaptation plan for an organisation or workplace. When considering a climate change adaptation action plan think about the makeup of those involved in decision making processes, include marginalised voices and think about whether the solutions proposed could be tailored to narrow existing inequalities and support vulnerable groups / those with protected characteristics.

PREVENTING MALADAPTATION

The actions that we take in tackling climate change are interlinked and unless action is considered carefully in the round, unintended consequences could arise which could make it more difficult to achieve success. Adaptation actions which inadvertently increase vulnerability are termed 'maladaptation'.

To avoid common pitfalls, you may find it helpful to consider the following when drawing up an adaptation action plan for your workplace:

Things to consider when devising adaptation and resilience actions for your workplace

1. It is important that cutting emissions doesn't create greater vulnerability to climate impacts. The actions we take to adapt to climate impacts must not result in higher greenhouse gas emissions, so for example providing staff with electric fans is not the best approach to address overheating in the workplace.
2. When considering adaptation action, consider how it impacts on marginalised groups, and whether it reduces inequalities or enhances entrenched privileges.
3. Would the action contribute to broader trade union goals of social justice, poverty reduction, the fair work agenda?
4. Would taking this adaptation action deflect the climate hazard onto neighbouring properties?
5. Will taking this action to increase resilience have any unintended negative consequences for workers and other stakeholders?
6. How can we adapt to this risk / or take advantage of this opportunity in a way which maximises the benefits to workers (health and safety, job security, wellbeing)?
7. Do existing workplace policies and provisions adequately protect workers from this hazard, if not which ones need to be updated, who should be consulted and how frequently should they be refreshed?

WHAT DOES GOOD ADAPTATION LOOK LIKE?

Generally, in today's interconnected world good resilience is relatively invisible until something fails. As a result, most of us don't have a clear picture of what we need to do to boost resilience.

Managing climate change risks could require changes to buildings, plant, working practices, project design, workplace policies, travel arrangements, risk management and business continuity to cope with new conditions to ensure that wellbeing, productivity, and safety is protected.

Some examples of adaptation actions include:

- retrofitting buildings with shading and natural ventilation to stop them overheating,
- adding flood protection measures such as flood doors, air brick covers and non-return valves,
- considering the full range of impacts from climate hazards on risk registers and in emergency planning / business continuity exercises,
- creating soft landscaping and streetscaping to absorb surface water flooding,
- changing policies and plans to accommodate new weather extremes,
- updating PPE to be more appropriate for new weather conditions,
- making sure that working conditions, patterns and welfare facilities can accommodate the changes to temperature, rainfall, and climate extremes that climate change may bring.

There are no one-size-fits-all solutions and adaptation will be best considered on a sector, location and case by case basis.

However, there are some common principles which can help us to design robust and flexible adaptation solutions.

UKCCRA3 10 principles for good adaptation planning

UKCCRA3 presents ten principles for good adaptation planning intended to bring adaptation into mainstream consideration by Government and business.[3] These are presented below along with what they might mean for trade unionists seeking to apply them in the workplace.

1. **Have a vision of what a well-adapted place looks like**
   It is easier to raise capital for a programme of resilience works if we can sell a positive vision of what a well-adapted workplace will look like and the wider benefits that adaptation action can bring to other challenges being experienced in the workplace.

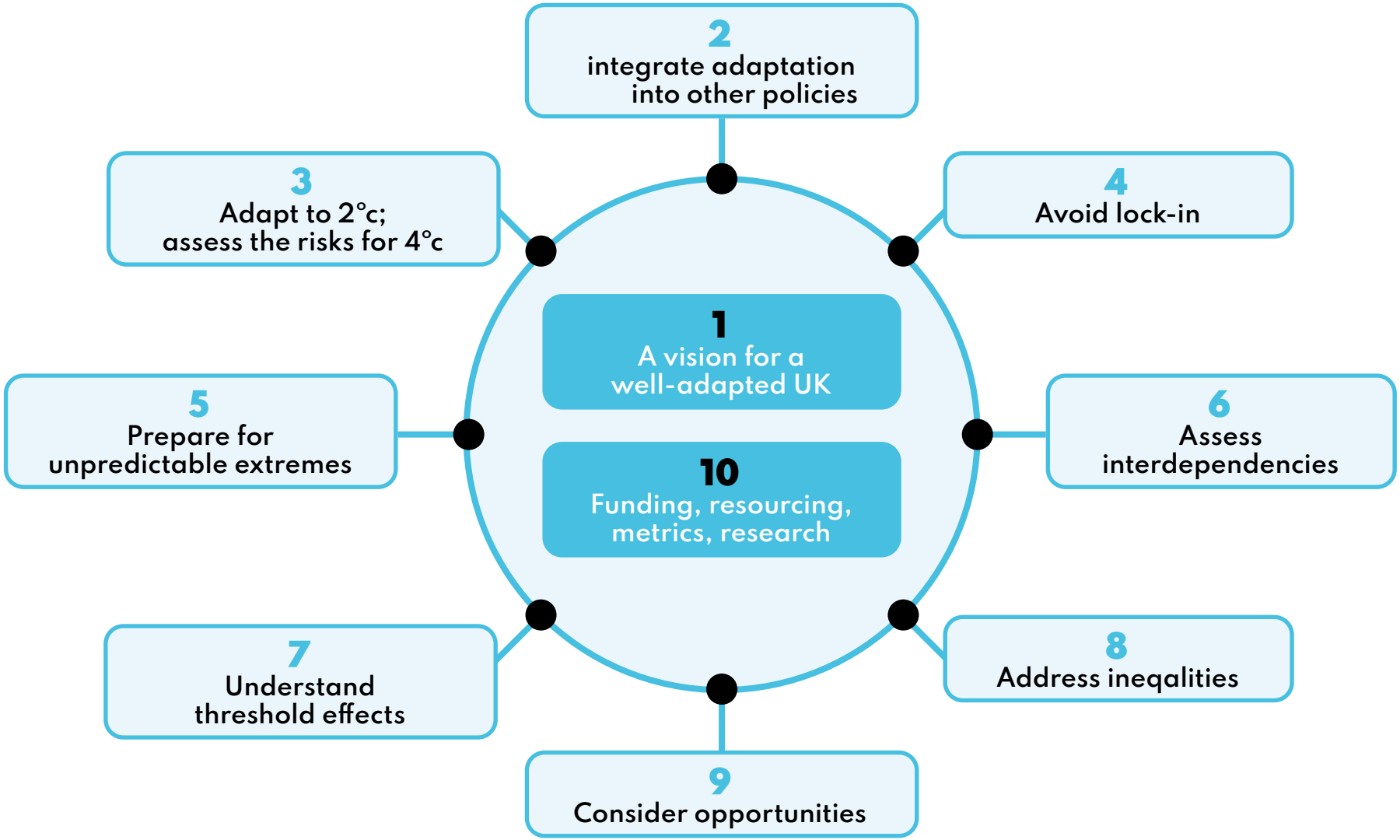
2. **Integrate adaptation into other policies**
   Climate change is not something which can be managed by one champion, climate impacts are likely to be messy and surprising and it is important that all parts of the organisation are involved in preparing for climate risks. All policies, plans and investment decisions may need to be screened and amended in the light of climate risks.

3. **Adapt to 2˚C but assess the risks for 4˚C**
   We have seen that the scale of future climate change is uncertain because it depends on how successful we are at cutting carbon emissions today. The CCC states that the UK must adapt to a minimum average global temperature rise of between 1.5 and 2˚C for the period 2050 – 2100 and consider the risks up to a 4°C warming scenario. On a practical level this supports the use of flexible adaptation solutions which can respond to a range of conditions, or which can be easily retrofitted to upgrade protection as needed, in the future.

4. **Avoid lock-in**
   In climate change the term 'lock-in' means a policy or course of action which commits the individual or organisation to an unsustainable

3 https://www.theccc.org.uk/publication/independent-assessment-of-uk-climate-risk/

Ten principles for good adaptation



Source: CCC

route which restricts future choices. For example, at a local planning authority scale, this might be granting planning permission for development of a coastal area which could be at risk of inundation in the coming decades. By granting planning permission, a Local Authority is then potentially 'locked into' protecting this development from sea level rise through the construction of artificial defences, which are expensive to build and maintain. In a workplace setting we need to make sure that the choices we make today don't limit us to an unsustainable or prohibitively expensive course of future action.

5. **Prepare for unpredictable extremes**
   Even modest average warming will cause significant changes to climate extremes. It is very important to consider the reasonable worse case and think beyond 'what happened last time'. Our lived experience of climate extremes is not going to be an accurate road map for future conditions.

6. **Assess interdependencies (especially between achieving net zero and increasing resilience)**
   It is important to consider how infrastructure systems rely on other systems, and how actions have the potential to impact on other agendas (As discussed in the **Maximising Cobenefits section** above).

7. **Understand threshold effects**
   'Threshold effect' can be defined as something reaching a level or 'tipping point' at which something starts to happen or change. Physical climate risk is growing, and changes are often felt in nonlinear ways. Within a workplace the threshold effect could be the point at which systems fail or activities become dangerous to sustain. Examples of this include:

   - What office temperature will cause servers to overheat?
   - What temperature within garages means that diesel starts to develop wax and vehicles are unusable?
   - At what windspeed does it become unsafe to work at height or in woodland?
   - What amount of rain means that local watercourses overflow and the workplace is at risk of flooding?

Threshold effects are very complicated, and it is likely that we may not be able to identify or quantify them all, however it is important that we are aware of these tipping points and the possibility of nonlinear change when considering resilience.

8. **Address inequalities within adaptation solutions**
   As discussed in the **Climate Justice** section above.

9. **Consider any opportunities offered by climate change**
   Climate change impacts are already widespread, rapid, and intensifying[4], .and will disproportionately impact those already in poverty[5]. Climatic changes already are estimated to cause over 150,000 deaths annually[6]. Furthermore, many changes due to past and future greenhouse gas emissions are irreversible for centuries to millennia[7]. Given this context it can feel troubling to consider if there are any upsides from climate change impacts that we can capitalise on. However, presenting an entirely negative picture paralyses action so it is important to be positive when making the business case for action on climate risks. You should highlight if there are any financial, business or wellbeing benefits that could be climate change

4 IPCC AR6 WGI Summary for Policymakers, pp10 https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Full_Report_smaller.pdf

5 Ibid pp22

6 World Health Organisation Health and Environment Linkages Project https://www.who.int/heli/risks/climate/climatechange/en/

7 IPCC AR6 WGI Summary for Policymakers, pp28 https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Full_Report_smaller.pdf

opportunities as outlined in the **Cobenefits** section above. The Climate Change Committee[8] notes that where climate change creates opportunities for the UK, action must still be taken to deliver benefits. Overall, the limited opportunities from climate change in the UK do not offset the substantial and pressing risks.

10. Fill funding, resourcing, metrics, and research gaps

This is especially pertinent for local authorities and others with a large property portfolio; however, all organisations should compile and record the costs of extreme weather events in terms of lost time, disruption, damages, and insurance claims to better understand the value at stake and provide an evidence base for action.

For more information on good principles for adaptation visit the Climate Change Committee's third Climate Change Risk Assessment pages: https://www.ukclimaterisk.org/

TURNING A RISK ASSESSMENT INTO ADAPTATION ACTIONS

After you have written up the assessment it is helpful to discuss with the local staff that informed the process if the group feels the risks are adequately addressed already. If they are not, discuss the best way to develop an appropriate response.

For public bodies such as local authorities, adaptation actions will not just be limited to their own workplaces, they also have local resilience responsibilities that encompass helping others to recover after extreme weather events. This might include providing emergency shelter where people can stay or access facilities such as hot showers, phone charging and refreshments, delivering emergency provisions (such as hot meals, drinking water, generators), clearing fallen trees from roads, as well as providing news updates and support to the local population.

Suggestions of potential actions which can be taken to reduce the risk or vulnerability of a workplace to specific climate hazards are given in the following tables:

8 https://www.theccc.org.uk/wp-content/uploads/2021/07/Independent-Assessment-of-UK-Climate-Risk-Advice-to-Govt-for-CCRA3-CCC.pdf

Some suggestions of climate resilient solutions for different hazards and workplace settings

Table 3 Adaptation actions for different climate hazards in indoor workplaces

WORKPLACE SETTING – INDOOR					
 Rainfall / flooding	 Extreme heat and extreme cold	 Snow and ice	 High winds / storms	 Drought	 Subsidence and landslides
Install PLP (property level protection) i.e., Flood doors, air brick covers, non-return valves Store sandbags Sign up for flood alerts Create a flood plan and emergency kit (see Checklist 11 for help on this) Create a flood evacuation plan with a designated refuge on high ground Move critical assets, activities, and vulnerable people away from lower elevations before problems arise Capture weather data in accident & downtime reporting When looking at new sites / premises check out their vulnerability to flooding: https://www.sepa.org.uk/environment/water/flooding/flood-maps/	Windows that open Other means of natural ventilation Blinds to reduce glare Green shading to reduce overheating and greenspaces for cooling Effective low carbon heating systems Agreed minimum or maximum temperature thresholds when it is not safe for some activities to continue Passive solar design to plan out activities (i.e., north facing rooms for 'hot' activities) Chilled storage for food, welfare facilities where workers can make hot or cold refreshments Workers able to control workplace temperatures	The right to work from home Community resilience hubs / touch down spaces for workers to minimise commuting in extreme conditions Digital alternatives for working and learning Renewable energy generation and battery storage to back up grid power Back up data links Regular inspections of adjacent trees and rooflines. When planting close to buildings avoid shallow rooted trees such as firs and pines as these are most susceptible to toppling in high winds. Undertaking regular maintenance of outside spaces including tree surgery if needed Investment in snow clearing equipment and peripherals and staff training Weather warning system to convey climate risks to staff to advise them if they need to leave early to avoid disruption or if the site needs to close early Set up time codes to record disruption from extreme weather events	Rainwater recycling Greywater recycling Water efficient appliances Drought resistant planting	GIS and LIDAR monitoring of slopes Regular inspections of buildings for cracks and evidence of subsidence Regular inspections of slopes and earthworks

Table 4 Adaptation actions for different climate hazards in outdoor workplaces

WORKPLACE SETTING – OUTDOOR					
Rainfall / flooding	Extreme heat and extreme cold	Snow and ice	High winds / storms	Drought	Subsidence and landslides
Systems to check in with outdoor workers to assess if they are safe during or in the aftermath of, extreme events Workers encouraged to sign up for flood alerts and weather warnings Appropriate PPE (including footwear) to protect workers from wet conditions Provide emergency response kit including communications equipment (phone or radio)	Alternative PPE / Uniform for hot and cold conditions Health and safety guidance on keeping safe in hot and cold weather Flexible working to avoid the most uncomfortable temperatures Provision of welfare facilities including hot and cold drinks, sunscreen, cool rooms, shelter, and shade Agreed minimum or maximum temperature thresholds for activities to be carried out safely, and suspended if exceeded Some seasonal activities may need to be rescheduled to accommodate changes to the climate. For example, hedge trimming and tree surgery may need to occur earlier in the spring to avoid bird nesting, as many species are breeding earlier in the year in response to warming.	Prohibit solo working in extreme conditions Weather warning system to convey climate risks to staff working remotely Set up time codes to record disruption from extreme weather events and to allow staff time to prepare their homes if needed Emergency plans including options to safely extract workers Feedback system for outdoor workers to report risks Increased use of weather-related contract terms and provision of downtime within schedules Risk assessment of outdoor activities including clear guidance on when activities need to be suspended Assessment of outdoor workplaces to assess risks of tree throw, falling masonry and falling ice. Hedge trimming and tree surgery / inspections may need to become more frequent to reduce storm damage hazards.		Provide refillable water bottles Allow more time for watering / landscaping activities during periods of low pressure Water conservation measures	Include risks of landslides and ground movement in risk assessments and work statements Toolbox talks to raise awareness of risks from landslides and warning signs

Table 5 Adaptation actions for different climate hazards in offshore workplaces

WORKPLACE SETTING – OFFSHORE			
Rainfall / flooding	Extreme heat and extreme cold	Snow and ice	High winds / storms
Systems for water quality information to be conveyed to inshore divers after extreme rain Agreed thresholds for suspending diving activities after extreme rain or when water courses are in spate Capture weather data in accident & downtime reporting	Flexible working to avoid the most uncomfortable temperatures Provision of refuge facilities in offshore renewable installations Provision of welfare facilities on offshore renewable installations Financial compensation for the rest days lost by workers unable to get back to shore at the end of a rotation Alternative PPE / Uniform for hot and cold conditions	Prohibit solo working in extreme conditions Over the side activities may be suspended more frequently, useful to provide timecodes for workers to register downtime Emergency plans including options to safely extract workers for all offshore workplaces Feedback system for offshore workers to report risks No blame site culture needed in emerging industries to allow workers to report near misses and areas where H&S protections are insufficient Build more downtime into schedules Standardise training and H&S standards across the offshore sector to maximise worker protection Include emergency refuge facilities in all offshore installations (including offshore renewables) Use of vessels with directional positioning systems rather than boosters	

Table 6 Adaptation actions for different climate hazards in home and hybrid work settings

WORKPLACE SETTING – HOME AND HYBRID WORKING					
 Rainfall / flooding	 Extreme heat and extreme cold	 Snow and ice	 High winds / storms	 Drought	 Subsidence and landslides
Systems to check in with home workers and hybrid workers to assess if they are safe during or in the aftermath of, extreme events Workers encouraged to sign up for flood alerts and weather warnings Promote the Scottish Flood Forum to learn about flood protection measures workers can take at home	'Winter fuel payment' for home workers Advice, grants and loans for energy efficiency and home resilience measures to make homes used as workplaces better able to respond to climate change Legal advice and support for workers who rent to help access support to improve the resilience and energy efficiency of their homes Health and safety guidance on keeping safe in hot and cold weather Flexible working to avoid the most uncomfortable temperatures Home workplace risk assessments	Prohibit solo working in extreme conditions Community resilience hubs / touch down spaces for workers to provide safe refuges in extreme conditions Back up digital systems / the cloud when networks go down Weather warning system to convey climate risks to staff working remotely Set up time codes to record disruption from extreme weather events and to allow staff time to prepare their homes if needed Emergency plans including options to safely extract workers Feedback system for remote workers to report risks Capture weather data in accident & downtime reporting		Publicising or offering grants or loans to home workers for water conservation measures such as water efficient appliances and aerated taps	Systems to check in with remote workers to assess if they are safe during or in the aftermath of extreme events Guidance for homeowners and renters on how to spot and remedy subsidence

Table 7 Adaptation actions for different climate hazards in travelling work settings

WORKPLACE SETTING – TRAVELLING FOR WORK					
Rainfall / flooding	Extreme heat and extreme cold	Snow and ice	High winds / storms	Drought	Subsidence and landslides
Appropriate PPE (including footwear) to protect workers from wet conditions Provide emergency travel kit including communications equipment (phone or radio) Thresholds for suspending travel Workers should sign up for flood alerts and weather warnings Advanced driver training	Agreed minimum or maximum temperature thresholds when it is not safe for some activities to continue Changing shift patterns and travel schedules to avoid the worst temperatures Chilled storage for food, welfare facilities where travelling workers can make hot or cold refreshments Allowance for refreshments in extreme conditions to avoid hypothermia or heatstroke Longer rest breaks Alternative PPE / Uniform for hot and cold conditions Health and safety guidance on keeping safe in hot and cold weather	Prohibit solo working in extreme conditions Community resilience hubs / touch down spaces for workers to minimise commuting in extreme conditions Digital alternatives to travel Weather warning system to convey climate risks to staff who are travelling Set up time codes to record disruption from extreme weather events Build more downtime into travel schedules Capture weather data in accident & downtime reporting Alternative travel plans including options to safely extract workers Threshold triggers for suspending travel		Provide refillable water bottles	Systems to check in with traveling staff and remote workers to assess if they are safe during or in the aftermath of extreme events

3. ACTIONS YOU CAN TAKE RIGHT NOW

Checklist 10. Priority actions for TU reps

The scale of climate change can make us feel helpless when it comes to making a difference. However, there are many practical, immediate actions that trade union reps can take today to help protect workers in their workplaces from risks associated with the changing climate:

1. Visit the **Adaptation Scotland** website https://www.adaptationscotland.org.uk/how-adapt/tools-and-resources and sign up for the Adaptation Scotland newsletter

2. To plan your journey toward climate change resilience and learn about practical actions you can take in your workplace using the **Adaptation Capability Framework** https://www.adaptationscotland.org.uk/how-adapt/your-sector/public-sector/capability-framework-interactive

3. **Work with any climate change staff** within your organisation or sector. Find out what they are doing and work with them to identify actions which maximise positive social justice and H&S outcomes.

4. **Undertake regular climate risk audit / site walkarounds** (like a H&S audit or fire safety audit) alongside facilities management, maintenance, and front-line staff to think about how buildings, sites, and activities could be impacted by extreme weather, and how these risks are changing as climate change progresses and as site activities and buildings evolve over time.

5. **Deliver regular Toolbox talks** to share climate risk information and gather observations from frontline staff. Make sure to think about ways to include contacts from upstream and downstream in the supply / value chain to raise awareness of cascading risks.

6. **Keep up to date with the news** for climate change impacts on similar organisations (for sectoral issues) and impacts in the local area.

7. **Get involved in facilities management / commercial tenant and landlord liaison groups** to learn more about impacts affecting properties nearby (for risks based on location) and share your experiences and look for common issues and opportunities for shared solutions.

8. **Liaise with TU contacts from upstream and downstream organisations** to see what hazards they are experiencing and how they are coping.

9. **Establish a working group within your workplace or sector** to consider climate risks and solutions, this might include representatives with experience of facilities management, business continuity, risk management and workplace health / wellbeing practitioners. This group could be tasked with:
   - **a.** Assessing near miss reporting and instances of 'we were lucky that time' to look for common themes and patterns, or
   - **b.** building the evidence base for action by working together to record downtime, staff absences, damage and insurance claims and other costs of climate events
   - c. providing a forum for employees to cocreate solutions

10. **Look at near miss reporting** and talk to frontline staff to identify hazards today and suggested solutions. It can be helpful to establish a confidential means of communication for staff to keep you up to date with future near misses and climate impacts as they arise.

11. **Include climate change impacts as H&S issues on risk registers**. Use the outputs of UKCCRA3 to understand what risks are considered the most pressing for action.

12. **Build the evidence base for action**: most organisations don't understand what climate impacts cost them. Encourage risk management / corporate staff to keep a record of downtime, staff absences, damage and insurance claims, and other costs of weather events.

13. **Sign up for flood warnings** from SEPA https://floodline.sepa.org.uk/floodingsignup/

14. Check SEPA's flood maps to understand local flood risk around your workplace: https://www.sepa.org.uk/environment/water/flooding/flood-maps/

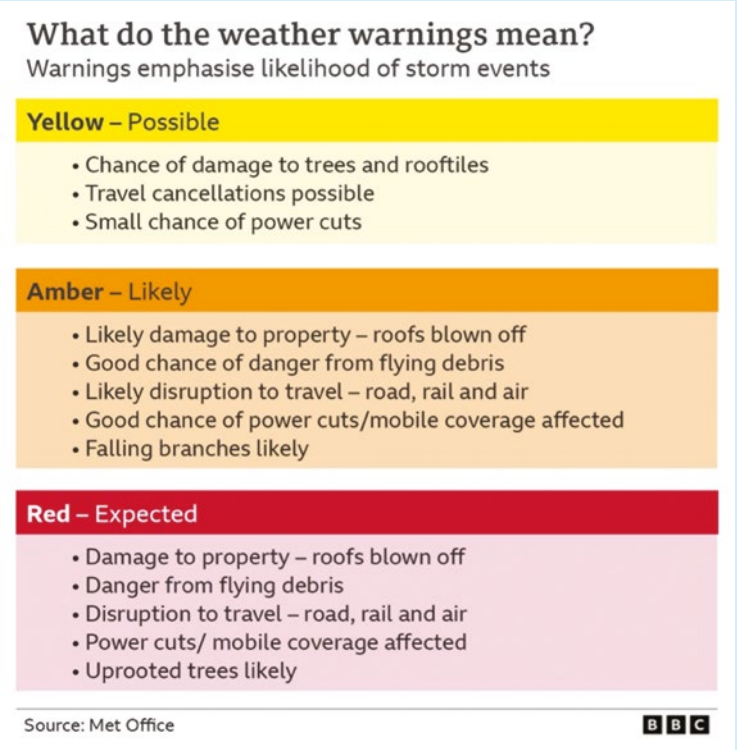
15. Visit the **Scottish Flood Forum** for practical advice on how to make your workplace more flood resilient https://scottishfloodforum.org/wp-content/uploads/2017/11/SFF-Flood-Protection-Guide-Web-min.pdf

16. **Raise awareness** of climate risks in the workplace to help colleagues understand the issues and work together to develop solutions.

17. **Create a weather emergency and flooding plan for your workplace** now so that if a problem arises, you are already prepared and know what to do to evacuate the workplace safely and in a way which minimises damage and recovery time. See checklist 11 for more details.

18. Sign up for and learn more about the **UK Met Office's system of weather warnings** so that you are better able to respond and help others in your workplace to take appropriate actions when weather warnings are issued. Met Office weather warnings are available in a number of ways, which make it easy to get the very latest information wherever you are. These include the Met Office app and website, social media, email alerts, TV, radio https://www.metoffice.gov.uk/weather/warnings-and-advice/

Understanding weather warnings



The Met Office issues weather warnings, through the National Severe Weather Warning Service, when severe weather has the potential to bring impacts to the UK. These warnings are given a colour (yellow, amber, or red) depending on a combination of both the impact the weather may have and the likelihood of those impacts occurring. The Met Office issues warnings for rain, thunderstorms, wind, snow, lightning, ice, extreme heat and fog.

Yellow and Amber warnings represent a range of impact levels and likelihoods. This means it is important to read each warning to know what level of impact you can expect for your chosen warning area – and how likely those impacts are to occur.

Yellow Warning: Yellow warnings can be issued for a range of weather situations. Many are issued when it is likely that the weather will cause some low-level impacts, including some disruption to travel in a few places. Many people may be able to continue with their daily routine, but there will be some that will be directly impacted and so it is important to assess if you and your workplace could be affected. Other yellow warnings are issued when the weather *could* bring much more severe impacts to many people but the certainty of those impacts occurring is much lower. It is important to read the content of yellow warnings to determine which weather situation is being covered by the yellow warning. The Met Office is monitoring the developing weather situation and Yellow means keep an eye on the latest forecast and be aware that the weather may change or worsen, leading to disruption of your plans in the next few days.

Amber Warning: There is an increased likelihood of impacts from severe weather, which could potentially disrupt daily life. This means there is the possibility of travel delays, road and rail closures, power cuts and the potential risk to life and property. An amber warning means that workplaces need to be prepared to change plans and take action to protect their workforce and property. You may want to consider the impact of the weather on your workplace and whether there is anything you need to do ahead of the severe weather to minimise the impact.

Red Warning: Dangerous weather is expected and, if you haven't already done so, you should act now to keep yourself and others safe from the impact of the severe weather. It is very likely that there will be a risk to life, with substantial disruption to travel, energy supplies and possibly widespread damage to property and infrastructure. You should avoid travelling, where possible, and follow the advice of the emergency services and local authorities.

Raising awareness

Mainstreaming practical resilience measures at home and at work would enable people to take greater ownership of their own resilience, help communities to support each other and minimise disruption and recovery time after extreme weather events.

Trade Union representatives can play an important role in raising workplace awareness of climate hazards and impacts and what we can do to adapt. Resources to help you raise awareness amongst fellow workers can be accessed here: https://www.adaptationscotland.org.uk/how-adapt/tools-and-resources/designing-engagement-strategy

There are also Adaptation Scotland resources designed to help you broach the subject of climate change adaptation with senior management (or other staff, community planning partners etc). https://www.adaptationscotland.org.uk/how-adapt/tools-and-resources/senior-management-briefing-template

Checklist 11. Creating a weather emergency and flooding plan for your workplace

The following checklist has been designed for responding to flood risk, but it could be useful for a variety of extreme weather events such as windstorms and extreme wintry conditions. It is important to revisit this checklist regularly to make sure the information remains up to date.

Actions you can take today	Tick once complete
Are you signed up to receive floodline warnings? If not you can sign up by calling Floodline on 0345 988 1188 or visiting their website https://www.floodlinescotland.org.uk/ It's possible to register up to five contact numbers and multiple address to one Floodline account, keeping important people in your workplace informed and ready to take action.	
Check if your workplace is at risk Flooding can affect more than just your workplace; it may impact on colleagues and deliveries that need to travel through areas of flooding to reach you. Use SEPA's Flood Maps to find out if your workplace is in an area at risk of flooding caused by rivers, the sea or surface water. **Create a flood / weather emergency plan which should include:** **1.** A staff contact list, including: • those who should be notified of a flood, • those working offsite or working from home who should be called to check that they are safe, and • a list of staff with mobility challenges, who may require assistance in the event of an evacuation.	
2. Details of essential services, including: • description or map showing key locations and service shut off points, • account number / policy number and contact details for utility and insurance providers, • the location of key files, equipment, servers etc which should be moved to a higher floor in the event of a flood warning. Better still consider whether these items can be located on an upper floor, higher shelf etc permanently to reduce the impact of a flood. • a copy of your flood insurance policy number and other important documents, • These documents should be stored online and printed out and stored in a physical emergency kit (alongside torches, bottled water, a first aid kit, local maps, phone chargers and PPE) which can be grabbed in a hurry.	

Actions you can take today	Tick once complete
3. A checklist of procedures for staff to carry out in the event of a flood (should this be possible in a way which does not compromise their safety), including: • Instructions for how to turn off services (electricity, water, security alarm, gas etc) • Details of any available materials to help protect the workplace such as sandbags, removable guards for doors and windows, make sure to include instructions on how to use these and where they are stored, • Which (if any) business critical files and equipment need to be moved to a higher floor / safe location, (if safe to do so), • Where the emergency kit is stored and who is tasked with this kit in the event of a flood, • Evacuation procedure and muster point for staff (this may be a similar process to that used for fire drills, but the muster point will need to be on high ground), • If any workplace vehicles should be moved this should be noted in the plan, with details of who should move them and where to park them (look for a parking location sited on higher ground), • Your local authority may set up a flood hub to organise the recovery after a flood. This is the first place to go for support and flood safety advice. You can also call Floodline, 24 hours a day, to get information and advice after a flood, • Don't return to your premises until emergency services say it is safe to do so. Flood water is dangerous. It is fast flowing and can be full of debris and mud, and sometimes raw sewage. Floodwaters should be avoided but if anyone must go near the water before it has fully receded, they should wear appropriate PPE such as waterproof boots, waterproof clothing, and rubber gloves. • Before you clear up after a flood – take photos of all the damage. Don't move or throw away damaged items without asking your insurer first. It may take a few days before loss adjusters arrive to assess the damage to your property and you can start making an insurance claim.	

Be prepared

You can protect your workplace and your colleagues by setting up a flood safety plan for emergencies. SEPA has some great advice on how to put together a flooding emergency kit https://vimeo.com/115980662?embedded=true&source=video_title&owner=24795876

By taking action to prepare for flooding, most businesses can save between 20 and 90% on the cost of lost stock and movable equipment and reduce the trouble and stress caused by a flood.

Checklist 11 in this workbook provides a template for creating a business weather emergency and flooding plan. It helps you keep essential information and decisions in one place, such as:

- Essential contact numbers, including utility and insurance companies.
- Instructions to turn off electricity, gas, and water.
- A checklist of things to do before the flood water arrives or if you have to evacuate.
- Reminders to check on neighbours who might need help.

4. GLOSSARY AND OTHER USEFUL RESOURCES

KEY TERMS

Adaptation
Adapting to climate change means taking action to prepare for and adjust to current and future changes in climate. It refers to changes in processes, practices, and structures to moderate potential damages or to benefit from opportunities associated with climate change.

Cascading risks
Multiple hazardous events are considered cascading when they act as a series of toppling dominoes, such as flooding and landslides that occur after rain over wildfires. Cascading events may also refer to events which arise because of one climate hazard impacting an asset or infrastructure system, which quickly cascades to impact other systems. Cascading events can also refer to impacts which begin in small areas, but which intensify and spread to influence larger areas.

Co-benefits
A 'co-benefit' is a beneficial outcome that happens when by tackling one issue, we create significant benefits in other areas. It can be helpful to highlight these when talking about climate change as they can be a good way of maximising support for action. For example, creating workplace green spaces can benefit wildlife and nature, reduce flood risks, and provide areas for relaxation for workers and support better physical and mental wellbeing. It may also be easier to achieve results in discussions with employers if the union can present adaptation as a win/win outcome.

IPCC
The Intergovernmental Panel on Climate Change is the United Nations body for assessing the science related to climate change and provides policymakers with regular assessments of the scientific basis of climate change, its impacts and future risks, and options for adaptation and mitigation. IPCC assessments provide a scientific basis for governments at all levels to develop climate related policies, and they underlie international climate negotiations.

Just transition
A just transition seeks to ensure that the substantial benefits of the transition from a fossil fuel powered economy to a net zero society are shared widely, while also supporting those who stand to lose economically. A just transition is an integral part of many of the global commitments adopted by countries such as the Paris Agreement on Climate Change and UN Sustainable Development Goals.

Lock-In
In climate change the term 'lock-in' means a policy or course of action which commits the individual or organisation to an unsustainable route and which restricts future choices.

Maladaptation
Failure to adjust adequately or appropriately to the environment or situation. Maladaptation is a process that results in increased vulnerability to climate variability and change, directly or indirectly, and/or significantly undermines capacities or opportunities for present and future adaptation.

Net Zero
Net zero refers to a target of completely negating the amount of greenhouse gases produced by human activity, to be achieved by reducing emissions and implementing methods of absorbing carbon dioxide from the atmosphere (i.e., tree planting, sea grass restoration and industrial carbon capture and storage). To avoid the most catastrophic impacts of climate change the IPCC estimates that "global net emissions of carbon dioxide will need to fall to net zero by 2050".

Resilience
An ability to withstand, recover from, or adjust readily to negative external changes. Climate resilience encompasses a dual function, to absorb shock and allow recovery.

Threshold effects
'Threshold effect' can be defined as something reaching a level or 'tipping point' at which something else starts to happen or change. Climate changes are increasingly occurring in nonlinear ways. Globally the idea of threshold effects can be illustrated by ice loss in the West Antarctic, the ice is not lost in a linear way, coastal glaciers are undermined by warming seas and once these are breached the loss of the wider icesheet can be rapid and catastrophic. Within a workplace the threshold effect could be the point at which systems fail or activities become dangerous to sustain.

Transformational adaptation
Transformational approaches to adaptation call for systems thinking and socio-institutional analysis, and offer the potential to deliver a larger, more sustainable, permanent, long-term change than individual adaptation actions.

Climate change jargon and acronyms can be baffling, to find out more about what key terms mean: **https://unfccc.int/process-and-meetings/the-convention/glossary-of-climate-change-acronyms-and-terms**

SOURCES OF FURTHER INFORMATION

To view the videos produced to accompany this project www.adaptationscotland.org.uk/how-adapt/tools-and-resources/climate-risks-workplace-protecting-workers-changing-climate

Adaptation Scotland Scotland's national climate risk and adaptation programme https://adaptationscotland.org.uk/how-adapt/tools-and-resources

Campaign against Climate Change Trade Union Group www.cacctu.org.uk to download a copy of the Climate Jobs: Building a workforce for the Climate Emergency booklet and the online technical companion: www.cacctu.org.uk/climatejobs

Climate Just compendium of adaptation resources focusing on social justice impacts of climate change https://www.climatejust.org.uk/resources

EPSU Public Services and Adaptation to Climate Change https://www.epsu.org/sites/default/files/article/files/2_EPSU%20Public%20services%20and%20adaptation%20to%20climate%20change%20for%20reading.pdf

Met Office latest weather warnings to sign up for advanced warnings about extreme weather in your area see https://www.metoffice.gov.uk/weather/warnings-and-advice/

Met Office Guide to weather warnings The Met Office issues weather warnings when severe weather has the potential to impact the UK. For more information, see the Met Office Weather Warnings Guide.

Public Sector Leadership on the Global Climate Emergency Guidance for Scotland's public bodies on their leadership role in the shared national endeavour to tackle the global crises of health, climate emergency and biodiversity loss.

https://www.gov.scot/publications/public-sector-leadership-global-climate-emergency/

Scotland's Climate Assembly Recommendations for Government report from the people's panel https://www.climateassembly.scot/full-report

Scottish Climate Change Adaptation Programme (SCCAP) Scottish adaptation action being undertaken 2019-24 by the Scottish Government & partners https://www.gov.scot/publications/climate-ready-scotland-second-scottish-climate-change-adaptation-programme-2019-2024/

SEPA guidance on putting together a flood emergency kit https://vimeo.com/115980662?embedded=true&source=video_title&owner=24795876

Scottish Flood Forum is an independent organisation which supports individuals and communities at risk from flooding https://scottishfloodforum.org/

Scottish Hazards is a charitable body that works to prevent work-related injury and illness by providing free and confidential health and safety advice and support to workers. https://www.scottishhazards.org.uk/

STUC climate change campaigns https://stuc.org.uk/campaigns-and-events/campaigns/homes

UKCP18 climate projections for Scotland summary https://www.adaptationscotland.org.uk/news-events/stories/new-climate-projections-summary-scotland

UKCCRA3 Independent Assessment of UK Climate Risk: Advice to Government https://www.theccc.org.uk/wp-content/uploads/2021/07/Independent-Assessment-of-UK-Climate-Risk-Advice-to-Govt-for-CCRA3-CCC.pdf

UKCCRA3 Evidence Report for Scotland Summary, Climate Change Committee https://www.ukclimaterisk.org/wp-content/uploads/2021/06/CCRA-Evidence-Report-Scotland-Summary-Final.pdf

UKCCRA3 Sector Briefings, Climate Change Committee https://www.ukclimaterisk.org/independent-assessment-ccra3/briefings/

UN 1.5C Special Report summarises the latest climate science and risks of runaway warming https://www.ipcc.ch/sr15/download/

Welsh TUC **Greener Workplaces for a Just Transition** https://www.tuc.org.uk/sites/default/files/2021-02/Greener%20Workplaces%20-%20English%20Version_0.pdf

Sniffer, Edinburgh Climate Change Institute,
High School Yards, Infirmary Street, Edinburgh, EH1 1LZ

T: 0131 650 5326 **E: info@sniffer.org.uk**
W: www.sniffer.org.uk **@SnifferScotland**

Scottish Charity No SC022375, Company No SC149513. Registered in Edinburgh.
Registered Office: 1 Exchange Crescent, Conference Square, Edinburgh, EH3 8UL

sniffer
knowledge brokers
for a resilient Scotland