



# CLIMATE ADAPTATION TOOLKIT

Guidance for building climate resilient health and social care in Wales

# CONTENTS



|  |  |  |  |   |  |
|--|--|--|--|---|--|
| <p>3 <b>Adaptation Toolkit</b></p> <p>5 <b>Introduction</b></p> <p>5 Our climate</p> <p>8 Sector summaries</p> | <p>10 <b>1 Getting started</b></p> <p>11 1.1 Adaptation literacy</p> <p>13 1.2 What motivated your decision to adapt?</p> <p>14 1.3 What do you want to achieve?</p> <p>15 1.4 What barriers might you face?</p> <p>16 1.5 How are you already responding to climate impacts?</p> <p>17 1.6 What other risks do you consider?</p> <p>18 1.7 What is your attitude to risk?</p> | <p>19 <b>2 Current climate vulnerability</b></p> <p>20 2.1 Organisation vulnerability</p> <p>21 2.2 Identifying weather events and risks in your area</p> <p>24 2.3 How have previous weather events affected your organisation?</p> <p>25 2.4 Identify critical thresholds where possible</p> <p>26 2.5 How well did your organisation and its providers cope with past weather events?</p> | <p>27 <b>3 Future climate vulnerability</b></p> <p>28 3.1 How is the UK climate expected to change?</p> <p>29 3.2 What are the main climate impacts for my sector or location?</p> <p>30 3.3 Are there indirect impacts to consider?</p> <p>32 3.4 What risks do these climate impacts present?</p> <p>36 3.5 What are the high priority risks that need an adaptation response?</p> <p>37 3.6 Do you need to find out more?</p> | <p>38 <b>4 Adaptation options</b></p> <p>39 4.1 Types of adaptation strategy</p> <p>42 4.2 Identify a range of adaptation options</p> <p>43 4.3 Evaluate your adaptation options</p> <p>45 4.4 Factors to consider when evaluating options</p> <p>47 4.5 Develop an implementation/delivery plan</p> <p>49 4.6 Implement/deliver your adaptations</p> | <p>50 <b>5 Monitoring &amp; evaluation</b></p> <p>51 5.1 The Adaptation Monitoring Framework</p> <p>52 5.2 What is the purpose of my evaluation?</p> <p>53 5.3 Evaluation criteria</p> <p>54 5.4 Measuring progress and performance</p> <hr/> <p>55 <b>Resources</b></p> <p>59 <b>Glossary</b></p> <p>62 <b>Get in touch</b></p> |
|--|--|--|--|---|--|

**ADAPTATION TOOLKIT**

INTRODUCTION

1 GETTING STARTED

2 CURRENT CLIMATE VULNERABILITY

3 FUTURE CLIMATE VULNERABILITY

4 ADAPTATION OPTIONS

5 MONITORING & EVALUATION

RESOURCES

GLOSSARY

GET IN TOUCH

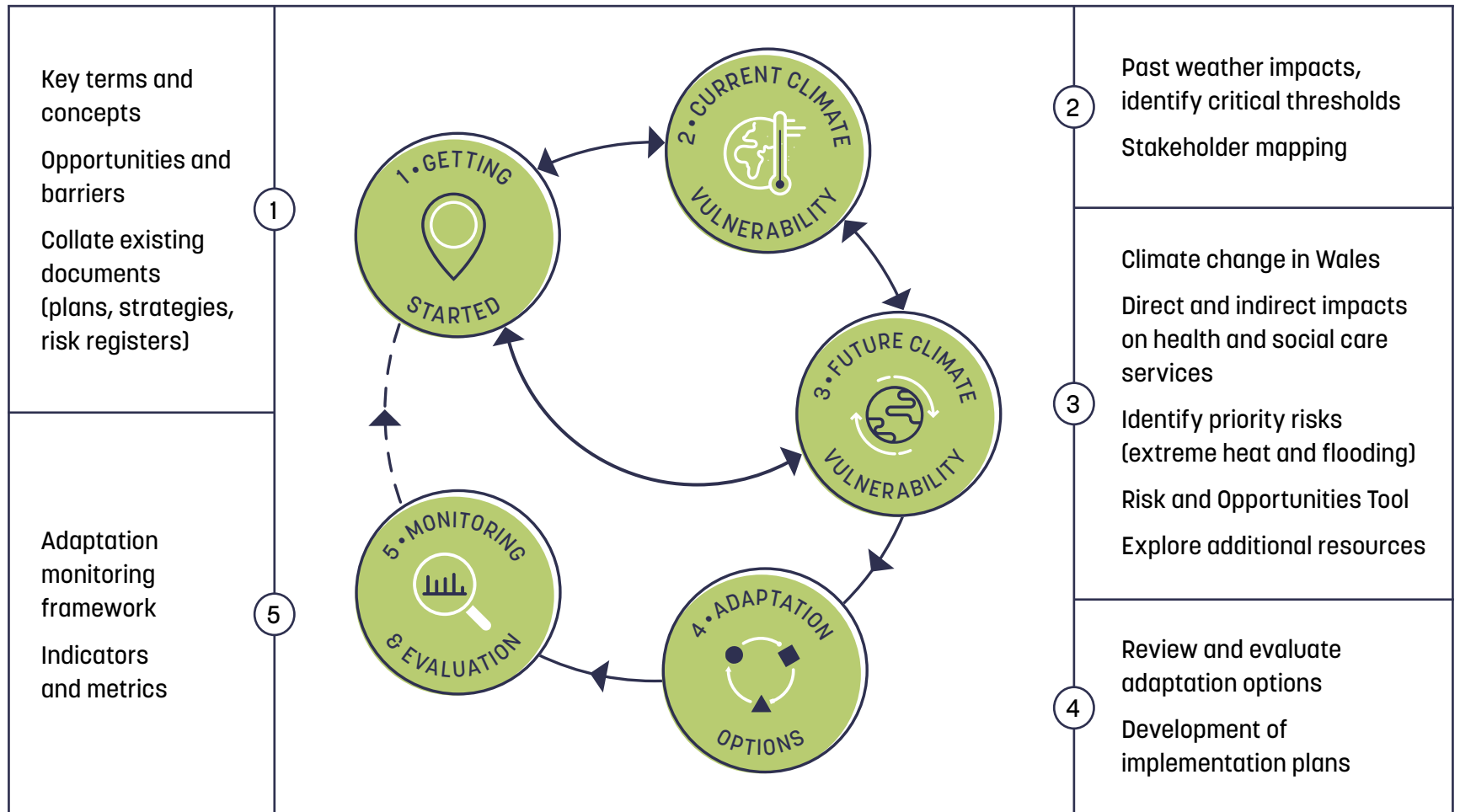
3 LOCAL PARTNERSHIPS

CLIMATE ADAPTATION TOOLKIT

GUIDANCE FOR BUILDING CLIMATE RESILIENT HEALTH AND SOCIAL CARE IN WALES

# ADAPTATION TOOLKIT

This toolkit has been designed for use at individual team, service or organisational level. By using the toolkit you will understand key terms and concepts and how to access the information to explore how climate change will impact your organisation and services. There are additional tools and resources highlighted throughout the document which will support the development of risk registers and plans. Suggested workshop activities are included – these are outlines for organisations/teams to develop and deliver.



**ADAPTATION TOOLKIT**

INTRODUCTION

1  
GETTING STARTED

2  
CURRENT CLIMATE  
VULNERABILITY

3  
FUTURE CLIMATE  
VULNERABILITY

4  
ADAPTATION  
OPTIONS

5  
MONITORING &  
EVALUATION

RESOURCES

GLOSSARY

GET IN TOUCH

4  
**LOCAL  
PARTNERSHIPS**

CLIMATE  
ADAPTATION  
TOOLKIT

GUIDANCE FOR  
BUILDING CLIMATE  
RESILIENT HEALTH  
AND SOCIAL CARE  
IN WALES

Whether you are new to climate change, have started the adaptation journey, or are looking to further enhance your action on adaptation, the toolkit can help you to:



Support the work of Public Services Boards (PSB) to raise awareness and priority of local climate change risk management and adaptation measures you can take.



Make the case for adaptation in your organisation, including assessing your vulnerability to climate change.



Access information and resources to help you.



Produce a climate risk register specific to your organisation, assets and service delivery – using the Risk and Opportunities Tool as a starting point.



Develop a climate-adaptation/resilience strategy, programme and project.

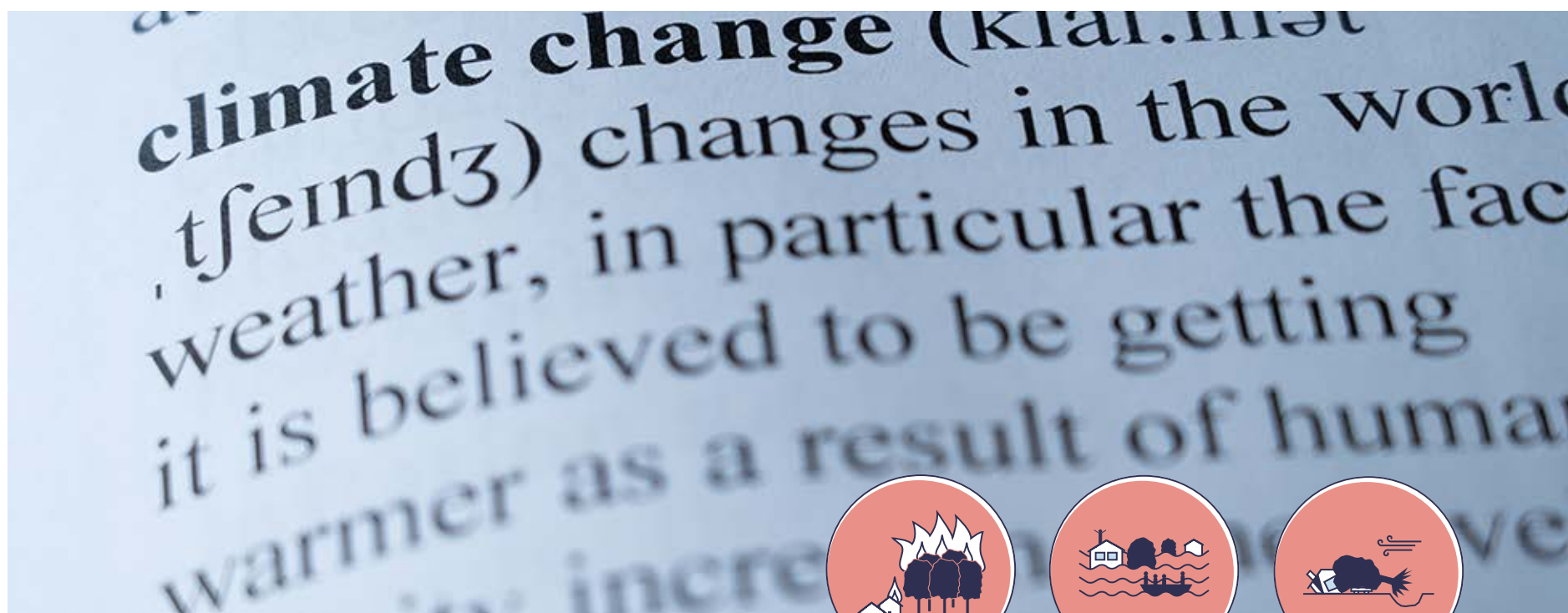


Embed climate adaptation into business as usual decision making and risk management, and written into policy (all service areas).

This toolkit has been structured to guide you through each stage of developing a strategy and action plan for adaptation, as a facilitation tool that seeks to bridge the technical guidance from the CCC’s third **UK Climate Risk Independent Assessment (CCRA3)** and the practicalities of health and social care.

Each stage outlines what you can do, what information you need to gather, some guiding questions, and how to record the information. Whilst the toolkit is presented in a linear way, your actual adaptation decision making may require you to jump back and forth between stages. This toolkit is intended to be read and used alongside other existing guidance documents (including the CCRA) to aid you to develop your understanding of climate risk and resilience for your organisation. There is a list of **resources available here**. This toolkit is aligned to the *Climate Change Risk Assessment Framework for PSBs* developed by Natural Resources Wales.

An introductory video with guidance for using the **toolkit is here**.



## OUR CLIMATE

The UK average surface temperature has already warmed by 1.2°C since the pre-industrial period, and is predicted to warm further by mid-century, even under an ambitious decarbonisation scenario. With this level of climate change, the **Welsh Government has an ambition for the public sector being collectively net zero by 2030**. Delivering on net zero and emissions reductions must happen alongside adaptation to the changes in climate we are already experiencing. Adapting to current and predicted changes to our climate, both at the national and local levels, is vital across the economy and action needs to be taken across Wales and beyond, and an important sector for both short and long-term actions and outcomes is health and social care. The current national climate

adaptation plan, **Prosperity for All: A Climate Conscious Wales** was published in 2019. A new national climate resilience strategy is due to be published in autumn 2024 and will include a high-level cross-sector climate resilience plan for health and social care. **The Well-being of Future Generations (Wales) Act 2015** is vital legislation to underpin the justification and a key driver for adaptation across the health and social care sector.

**The Chief Medical Officer for Wales reported in 2023** that according to ONS Statistics “During the five heat-periods between June and August 2022 3271 excess deaths were reported for England and Wales, additionally the average number of deaths per day

**INTRODUCTION**

1  
GETTING STARTED

2  
CURRENT CLIMATE  
VULNERABILITY

3  
FUTURE CLIMATE  
VULNERABILITY

4  
ADAPTATION  
OPTIONS

5  
MONITORING &  
EVALUATION

RESOURCES

GLOSSARY

GET IN TOUCH

6  
LOCAL  
PARTNERSHIPS

CLIMATE  
ADAPTATION  
TOOLKIT

GUIDANCE FOR  
BUILDING CLIMATE  
RESILIENT HEALTH  
AND SOCIAL CARE  
IN WALES

was higher for heat-period days than non heat period days". Public Health Wales analysis shows that "was an increase in deaths in Wales on the final day of each heat event (possibly a cumulative effect)".

Even with efforts to reduce emissions, climate change will continue to have an impact for some decades yet. Appropriate governance and decision making is essential, ensuring that leadership teams and decision-makers at all levels are aware and understand climate risk management for local areas and populations, and the need for resilience measures to support adaptation to both extreme weather events and incremental changes to our environment.

A vulnerability can often be hidden, managed, or tolerated in a way that masks its effects, so do not assume that your organisation or community is prepared if weather impacts are not immediately obvious.

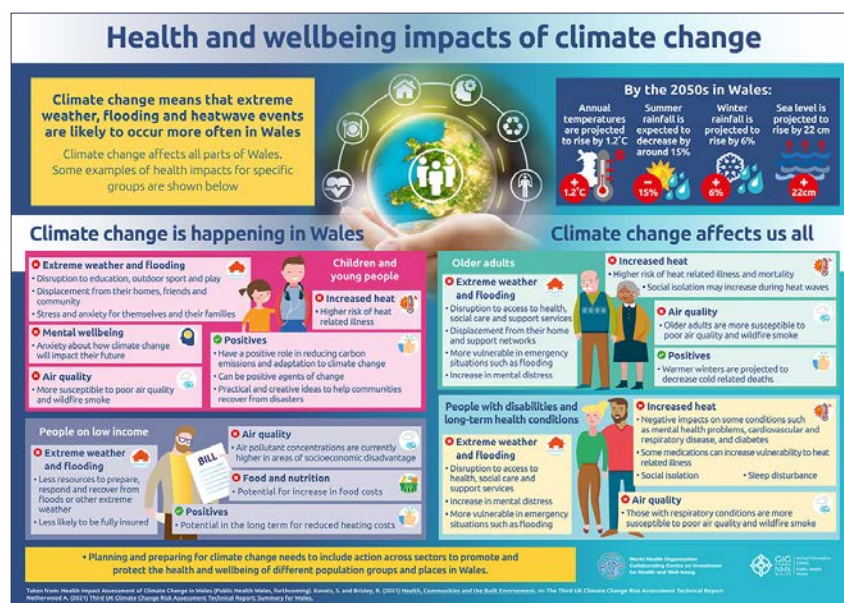
The four health recommendations in the CCC's "Adapting to Climate Change: Progress in Wales" report:

1. Develop a long-term cross-sector approach to address risks in the social care sector. This could be as part of the Net Zero social care route map, where adaptation action should be integrated into plans for decarbonisation and actioned from the start.
2. Make available long-term, protected funding to adapt hospitals, care homes and other healthcare buildings to the impacts of climate change.
3. Develop, agree and implement a health and social care indicator suite.
4. Ensure a joined-up approach between mitigation and adaptation to ensure there is not an increasing demand on the health sector.

The Climate Change Committee's (CCC) report "**Adapting to Climate Change – Progress in Wales**" published in September 2023 highlights that *2022 was the hottest year on record in the UK and a new maximum daily temperature was recorded in Wales of 37.1C in Flintshire*. Higher than average sea levels and increased annual rainfall have impacted Wales, with devastating flooding in February 2020. The impact on health infrastructure and the long term public health impacts from such events are projected to feel the strain from further increases to maximum temperature, increased rainfall and sea level rise. Supply chains for medicines and equipment, interruptions to water and power supplies as well as new diseases and chronic health impacts affecting patients and the workforce are all highly likely to be adversely impacted. We need to find creative and collective solutions to the challenges that arise from these impacts, and take advantage of any opportunities, in short, we need to adapt. The World Health Organisation defines a climate resilient and low carbon health system as below:

“

**Climate resilient and low carbon health systems are those capable of anticipating, responding to, coping with, recovering from, and adapting to climate-related shocks and stress, while minimising GHG emissions and other negative environmental impacts to deliver quality care and protect the health and well-being of present and future generations.**



In 2023 Public Health Wales published the findings of **Health Impact Assessment (HIA) of climate change in Wales** which provides a comprehensive, evidence-based strategic overview of the main health, well-being and equity impacts of climate change in Wales. It aims to support **action on climate adaptation and resilience in Wales**, by providing evidence on the wider health impacts of climate change in Wales, and what it means for people's lives, and **specifically to support organisations to consider the health impacts, challenges and opportunities**.

The main findings are that climate change will have a **major long-term impact on physical and mental health, well-being and equity** through increasing heat related illness, mental health problems as a result of experiencing flooding, and disruption to essential services. These impacts are multifaceted, are not static and will affect the population of Wales in the immediate and long-term, with some groups who are likely to be more vulnerable to negative

health and wellbeing impacts including older adults, children and young people, people with long term health conditions, people in certain occupation groups, people living by the coast, and those living on a low income.

The report suggests that action on adaptation needs to go beyond responses to individual episodes of extreme weather (which will become more frequent). **Long-term, preventative solutions** are needed that adapt policy, housing, the living environment, and individual behaviours, with the aim of preserving quality of life and wellbeing for all. Public participation in policy and planning for the future needs to be strengthened, and we need to build more support to help communities to prepare, respond and recover from flooding, coastal erosion, and other environmental impacts.

The HIA also concluded that further research is needed in several areas including identification of potential changing and increased health service demand arising from climate change, effective mitigation of short to long-term impacts of flooding and other extreme weather impacts on mental health and well-being on affected populations.

When published the **Minister for Health and Social Services** **Eluned Morgan** said:

“

**I urge health and social care colleagues and the wider public sector to use this HIA to inform and enhance their approach to adaptation planning.**

# SECTOR SUMMARIES



## NHS ORGANISATIONS, INCLUDING DELIVERY OF PRIMARY CARE

### Key plans for review

- Integrated Medium Term Plan
- Decarbonisation Action Plan
- Estates and Facilities Management Performance Monitoring
- Service/contractor/corporate risk registers
- Business Continuity Plans (including contractors for Primary Care)
- Greener Primary Care Framework
- Cluster Plans (particularly relevant for Primary Care)

### Opportunities for joined up approach for mitigation and adaptation

- Retrofit investment programmes (for example Re:fit, opportunities for improving thermal comfort and cooling)
- Expand existing Decarbonisation Action Plans into fully developed Climate Action Plans that include adaptation
- Greener Primary Care Framework Actions
- Active travel initiatives (including for Primary Care, linked to the Greener Primary Care Framework)

### Data sources to explore

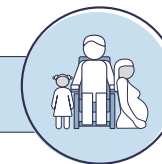
- Energy consumption data
- Maximum temperature data in wards and facilities
- Admissions data
- Workforce sickness data
- Flood risk assessment
- PSB Wellbeing Assessments
- Energy consumption data
- Number of appointments
- Prescribing data (e.g. inhalers, allergy medication)
- Sales data (e.g. sunscreen sales)

### Key stakeholders

- Public Services Boards
- NHS Wales Shared Services Partnership
- Primary Care Contractors
- Local Resilience Forum
- Public Health Wales
- Stakeholder map
- Cluster Hubs
- Transport for Wales
- Welsh Water





**SOCIAL CARE****Key plans for review**

- Local Authority Climate Action Plans
- Commissioning Plans
- Contract Management Plans
- Service/corporate risk registers
- Business Continuity Plans – council and providers

**Opportunities for joined up approach**

- Retrofit investment programmes (for example Re:fit, opportunities for improving thermal comfort and cooling)
- Expand existing Decarbonisation Action Plans into fully developed Climate Action Plans that include adaptation
- Inclusion of adaptation and mitigation in tender specifications

**Data sources to explore**

- Energy consumption data (council and providers)
- Admissions data
- Workforce sickness data
- Maximum temperature data in care homes and facilities
- Flood risk assessments
- PSB Wellbeing Assessments

**Key stakeholders**

- Public Services Boards
- Provider networks
- Health boards
- Local Resilience Forum
- Transport for Wales
- Welsh Water
- Stakeholder map

# 1 GETTING STARTED



**This step is designed to help you get started, often some of the most important decisions are made during this initial phase.**

As you complete the activities in this step you will have:

---

Improved your organisation's adaptation literacy (key concepts and terms)

---



---

Reviewed your service/organisation's existing responses to climate impacts

---



---

Identified opportunities and barriers to adapting to climate change

---



---

Gathered and reviewed existing key documents and plans

---

# 1.1 ADAPTATION LITERACY

Understanding the language, technical terms and fundamental concepts of adaptation is critical in following the Adaptation Toolkit.

| Term                      | Meaning  |
|---------------------------|--|
| <b>Adaptation</b>         | Otherwise known as resilience or preparedness. Resilience is the ambition, adaptation is the method. (Planned, reactive, anticipatory, spontaneous).   |
| <b>Climate</b>            | Climate is typically defined as the average weather (or more rigorously a statistical description of the average in terms of the mean and variability) over a period of time, usually 30 years. These quantities are most often surface variables such as temperature, precipitation, and wind. Climate in a wider sense is the state, including a statistical description, of the climate system. |
| <b>Critical threshold</b> | A critical threshold is the point in a system at which sudden or rapid change occurs. Critical thresholds may also relate to positive opportunities.   |
| <b>Exposure</b>           | Exposure indicates the presence of assets, services, resources and infrastructure that could be adversely affected.  |
| <b>Hazard</b>             | Hazard refers to the potential occurrence of climate-related physical events or trends that may cause damage and loss.   |
| <b>Mitigation</b>         | Reducing greenhouse gas emissions in order to slow or stop global climate change.  |
| <b>Proactive</b>          | Acting in anticipation of potential risks or opportunities, with the aim of preventing or mitigating negative impacts and maximising positive outcomes. Proactive actions may involve implementing measures to address current and future risks or opportunities before they escalate or fully materialise.  |
| <b>Reactive</b>           | Responding to risks or opportunities after they have already occurred or become apparent. Reactive actions may involve addressing immediate needs or consequences, often in response to a specific event or situation.   |
| <b>Receptor</b>           | An entity, asset or system that is affected by climate change impacts.   |

| Term                   | Meaning  |
|------------------------|--|
| <b>Risk</b>            | Risk averse – unwilling to take risks or wishing to take as few risks as possible.   |
|                        | Risk aware – understanding the potential losses or damage from an action.  |
| <b>Risk assessment</b> | A risk assessment involves assessing:  |
|                        | <ul style="list-style-type: none"> <li>– The probability, or likelihood, of the impact occurring and</li> <li>– The magnitude, or consequence, of the impact should it occur. The Risk and Opportunities Tool that accompanies this toolkit supports this activity.</li> </ul>   |
| <b>Strategic</b>       | Planned, coordinated, and forward-thinking approaches to addressing climate risks and opportunities. Strategic actions may involve long-term planning, resource allocation, and decision-making aimed at achieving specific objectives related to climate adaptation and mitigation.   |
| <b>Vulnerability</b>   | Vulnerability is the degree to which a system is susceptible to and unable to cope with adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate change and variation to which a system is exposed, as well as its sensitivity and adaptive capacity. |
| <b>Weather</b>         | Weather refers to the state of the atmosphere with regard to temperature, cloudiness, rainfall, wind, and other meteorological conditions.   |

### Suggested workshop – ADAPTATION LITERACY

*(for officers, leadership team/elected members, directors of planning, front line staff, key service providers)*

Step 3 of this toolkit provides additional detail and resources to support this activity.

It is worth spending time with colleagues developing the organisation's adaptation literacy to ensure there is no

confusion or misunderstanding. What may seem obvious to someone who has worked in climate change may not be obvious to someone who has not.

This workshop will be able to link climate resilience/ adaptation to net zero and the climate emergency and ensure everyone in your organisation has the level of understanding required to begin developing an action plan and interpret climate risk.

CONTENTS

ADAPTATION TOOLKIT

INTRODUCTION

**1**  
GETTING STARTED

2  
CURRENT CLIMATE  
VULNERABILITY

3  
FUTURE CLIMATE  
VULNERABILITY

4  
ADAPTATION  
OPTIONS

5  
MONITORING &  
EVALUATION

RESOURCES

GLOSSARY

GET IN TOUCH

**13**  
LOCAL  
PARTNERSHIPS

CLIMATE  
ADAPTATION  
TOOLKIT

GUIDANCE FOR  
BUILDING CLIMATE  
RESILIENT HEALTH  
AND SOCIAL CARE  
IN WALES

## 1.2 WHAT MOTIVATED YOUR DECISION TO ADAPT?



***Think about why you are exploring resilience and adaptation to climate change and ensure this is captured in your records. The WHO acknowledges that building health system resilience to climate change is a cumulative and iterative process and begins with a goal of service resilience.***

Common factors or triggers for taking adaptation action are:

|  |                          |   |                          |
|--|--------------------------|---|--------------------------|
| Developing and reviewing your local climate risk assessment.   | <input type="checkbox"/> | Increasing resilience to disruption to services from extreme weather.                         | <input type="checkbox"/> |
| Providing support for service area reports and business case development.  | <input type="checkbox"/> | Ethics and public expectations.   | <input type="checkbox"/> |
| Alignment with decarbonisation projects to ensure risk of unintended consequences of retrofit or construction is minimised, and to make best use of available funding and financing. | <input type="checkbox"/> | Statutory duties.   | <input type="checkbox"/> |
| Impacts of an extreme weather event, such as a flood or heatwave which has negative impacts on operations, services, finances, health or safety and public health outcomes.          | <input type="checkbox"/> | Investing money to save in the future – example of cost benefit analysis.                     | <input type="checkbox"/> |
|  |                          | Avoiding future liability.  | <input type="checkbox"/> |
|  |                          | Making decisions about the resilience of long-term assets such as infrastructure or land-use. | <input type="checkbox"/> |

The motivation to adapt will inform the type of adaptation strategy (mid to long term objectives) and/or action plan (shorter term delivery) that you will develop (from scratch or to improve existing plans). For example, reactive, proactive, strategic.

For more detail on the differences between adaptation strategy types please, refer to the table in Step 4.1.

CONTENTS

ADAPTATION TOOLKIT

INTRODUCTION

**1 GETTING STARTED**

2 CURRENT CLIMATE VULNERABILITY

3 FUTURE CLIMATE VULNERABILITY

4 ADAPTATION OPTIONS

5 MONITORING & EVALUATION

RESOURCES

GLOSSARY

GET IN TOUCH

**14 LOCAL PARTNERSHIPS**

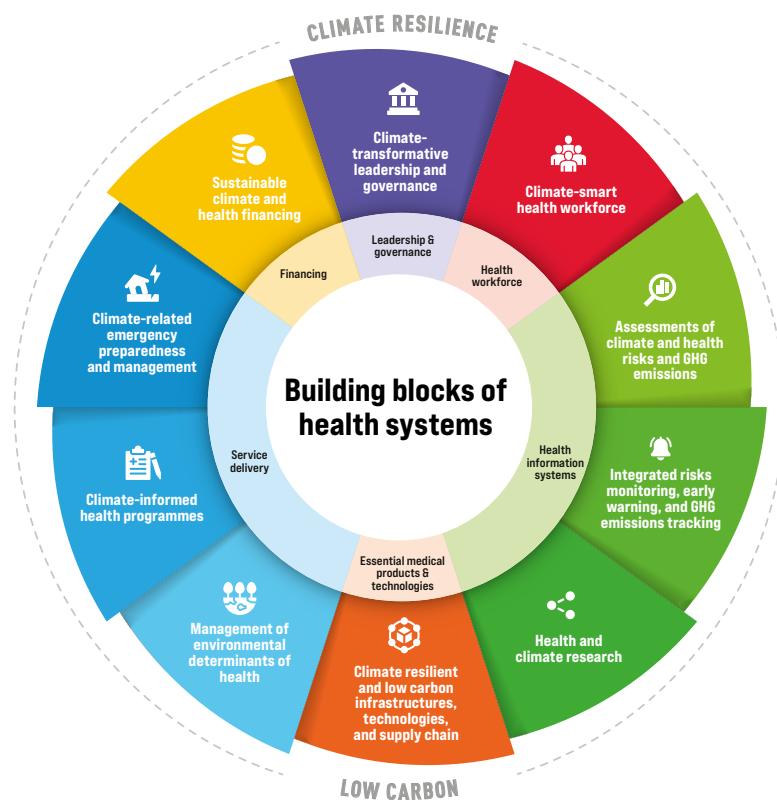
CLIMATE ADAPTATION TOOLKIT

GUIDANCE FOR BUILDING CLIMATE RESILIENT HEALTH AND SOCIAL CARE IN WALES

## 1.3 WHAT DO YOU WANT TO ACHIEVE?



**Think about what it is you are trying to achieve with your adaptation strategy, and how it links to your decarbonisation strategy. Figure 1 from the WHO shows the building blocks of a climate resilient and low carbon health system.**



**Figure 1: World Health Organisation – The Building Blocks of Health Systems**

For example:

A more climate resilient local area.

Robust reporting for service areas.

“An updated risk register” developed using the Risk and Opportunities Tool.

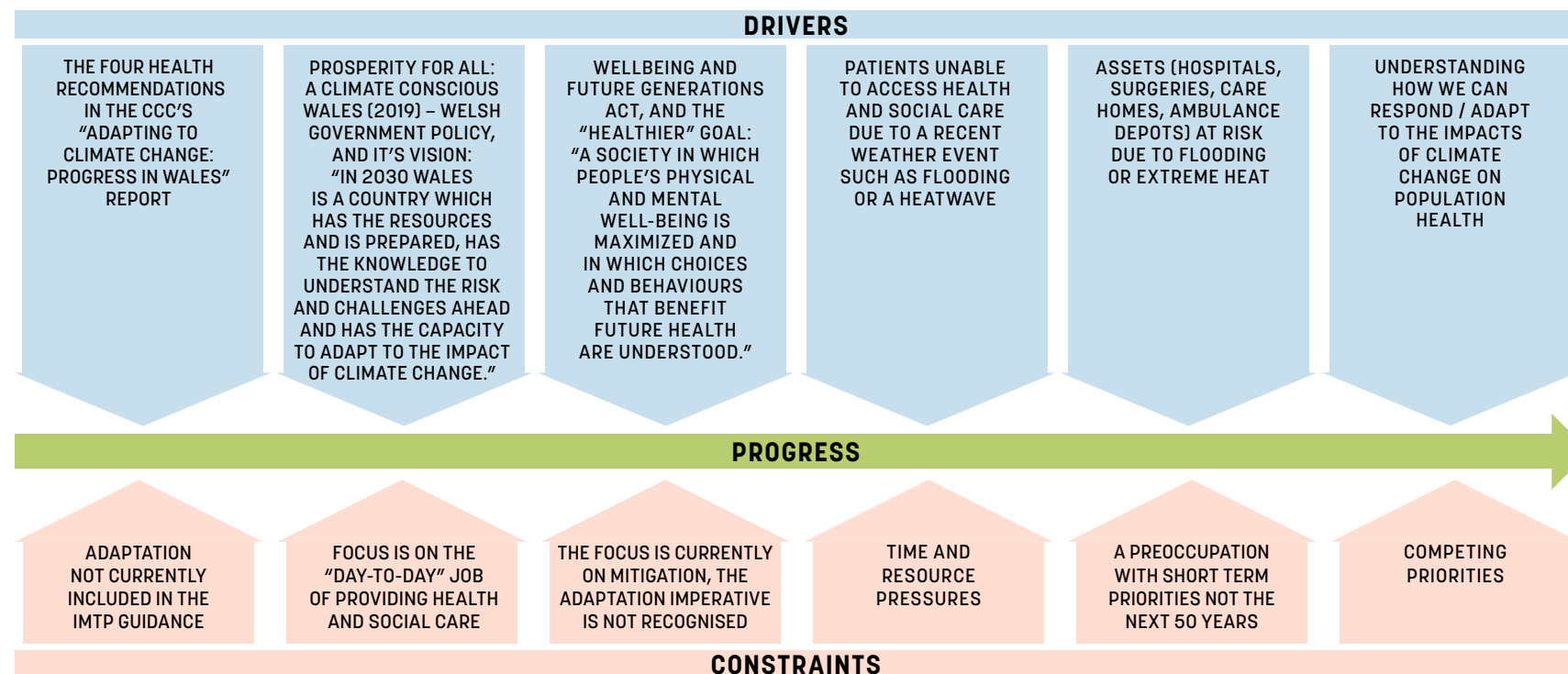
Health outcomes/prevalence/mortality.

Roles and responsibilities, accountability mapping – (please also see PSB Climate Risk Assessment Guidance issued by Natural Resources Wales).

- CONTENTS
- ADAPTATION TOOLKIT
- INTRODUCTION
- 1 GETTING STARTED**
- 2 CURRENT CLIMATE VULNERABILITY
- 3 FUTURE CLIMATE VULNERABILITY
- 4 ADAPTATION OPTIONS
- 5 MONITORING & EVALUATION
- RESOURCES
- GLOSSARY
- GET IN TOUCH
- 15 LOCAL PARTNERSHIPS
- CLIMATE ADAPTATION TOOLKIT
- GUIDANCE FOR BUILDING CLIMATE RESILIENT HEALTH AND SOCIAL CARE IN WALES

## 1.4 WHAT BARRIERS MIGHT YOU FACE?

Figure 2 may help you identify what barriers your organisation could face when developing an adaptation strategy. How can you reduce or minimise the impacts of barriers and maximise the effects of solutions you have identified? It is important to acknowledge and address potential barriers and constraints at the outset so they can be incorporated into your monitoring and review process.



**Figure 2: Drivers and constraints to adaptation**

### **Suggested workshop – OVERCOMING BARRIERS**

*(for officers, commissioners, leadership team, directors of planning)*

Identify potential barriers and constraints within your organisation and think about how they might be overcome

for both completing the toolkit and to implementing adaptation measures.

This workshop will support the development of the risk register, internal and external engagement activity.

## 1.5 HOW ARE YOU ALREADY RESPONDING TO CLIMATE IMPACTS?



***Identify where your organisation's response to previous weather events could inform your adaptation strategy. This can act as a useful workshop helping identify who needs to be engaged in developing the adaptation strategy.***

Recent examples to explore how your organisation is responding and any subsequent service redesign and cost impacts are Storm Dennis in February 2020, Storm Eunice in February 2022 and the July 2022 heatwave.

If you are running this as a workshop activity, you could do the following exercise as a breakout activity; otherwise, it can be done as a desktop exercise, capturing the following outputs to produce a snapshot of your organisation's sensitivity to current weather variability impacts. An example is given below.

|  |   |   |  |
|--|---|---|--|
| <b>The weather event detail</b><br><i>Heatwave – ward closures, equipment failures, additional admissions.</i> | <b>Location of incidents</b><br><i>Overheating of wards/care homes.</i> | <b>The date of incidents</b><br><i>July 2022.</i> | <b>Source of the information</b><br><i>Estates management/care providers.<br/>Admissions data.</i> |
|--|---|---|--|



## 1.6 WHAT OTHER RISKS DO YOU CONSIDER?



***You should review your corporate risk register to find out the full range of risks your organisation or service area faces, as well as researching any specific service-level and contract-level risk registers.***

The corporate risk register may already have climate risk recorded or may have climate risks captured that have not been explicitly flagged as such (for example thermal comfort of buildings). “Climate impacts can exacerbate or mask existing risks, so it will be important to review existing corporate risk registers with a “climate lens”. This will allow you to examine your climate and non-climate risks and consider which will have the greatest impact on your organisation at Step 3.4. You can then make decisions according to their relative importance.

For access to healthcare and health outcomes, there will be risks that your organisation will not be the accountable body for in terms of actions and data. Understanding roles and responsibilities and identifying partner organisations is an important first step. Review the PSB workbook for partners and understanding where each organisation/partner is in process.

Link to the Risk and Opportunities Tool and example risk register in **resource section/as appendix**.

## 1.7 WHAT IS YOUR ATTITUDE TO RISK?

How much climate risk your organisation is prepared to accept will have an impact on your adaptation strategy and help you to assess the risks around your proposed options. If the organisation is risk-averse (dislikes risk), identifying and implementing quick fixes that will reduce your short-term vulnerability to climate risks may be an option while you investigate further options.



***Think about your organisation's overall attitude to risk, as well as the individual risks facing your activity or decision.***

It will be important to explore the co-benefits of adaptive activity, and the costs of taking no action when considering the approach to risk assessment. It is well accepted that there are costs associated with lack of intervention in relation to chronic disease and long-term health outcomes – the same can be applied to adapting to climate change. Many of the interventions and adaptive measures required will reduce demand on health services.

**The Costs of Adaptation, and the Economic Costs and Benefits of Adaptation in the UK**, an analysis part of the CCRA3, indicates that investments in adaptation have high cost-benefit ratios, particularly in relation to heat.

Consider the implications of not acting (risk aware) and taking a watch and wait – refer to Step 4 and the range of adaptation strategies and assess which is appropriate.

The **UK National Risk Register (2023)** sets out the definition of chronic risk and how risks such as climate change make acute risks more likely and serious.

**Welsh Government has committed to responding to the risks and recommendations set out by the CCC** in the Adaptation Progress Report in the forthcoming national climate resilience strategy which will take whole-system, outcomes-focussed approach, aligned to the CCC's updated climate adaptation monitoring framework.

As you explore the current and future climate vulnerability in Steps 2 and 3, it will be important to review your existing risk registers to understand where non climate risks may be exacerbated by climate change – both access to health care and long term health outcomes.



## 2 CURRENT CLIMATE VULNERABILITY



**The activities in this step will help you to explore how your organisation, services and assets are currently being affected by weather events. As you complete the activities in this step you will:**

---

Have assessed your organisation's vulnerability to climate change




---

Considered how effective your organisation's response to past weather events was, and what influences its capacity to respond




---

Identified critical thresholds which, when exceeded may cause unacceptable losses, require redesign of services or may create new opportunities




---

Explore the stakeholder mapping



## 2.1 ORGANISATION VULNERABILITY

Your organisation's vulnerability is determined by:

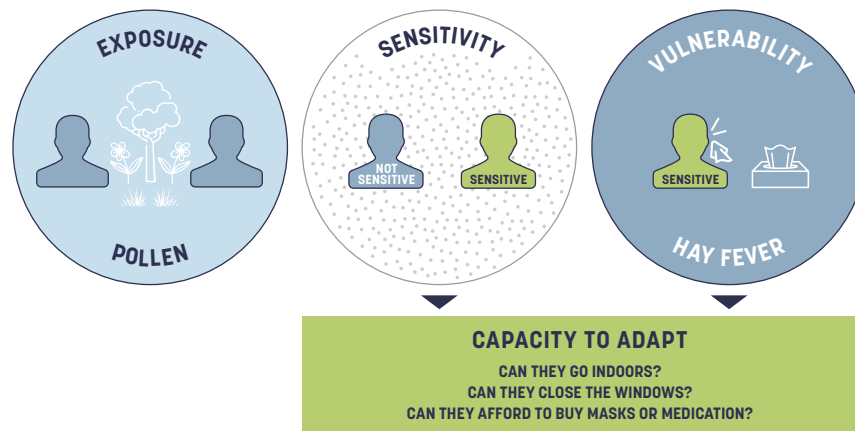
- Exposure to hazards such as high temperatures, intense rainfall, or storm surges.
- Sensitivity to those hazards.
- Your capacity to adapt – for example, information, financial resources, professional knowledge, and skills.

Note: Vulnerability can often be hidden or managed or tolerated in a way that masks its effects, so do not assume that your organisation is safe if weather impacts are not immediately obvious.

In the example below, for there to be a potential issue, the person needs to be exposed to the pollen. However, if they are not sensitive to pollen, then they are not vulnerable to getting

hay fever. Or it may be that they can tolerate a certain amount of pollen but once the levels get too high then they become sensitive and therefore vulnerable to pollen. The person's capacity to adapt depends on certain aspects, such as, if they are indoors they can close the windows, or maybe they can afford to buy masks or medication.

The Intergovernmental Panel on Climate Change (IPCC) defines risk as the potential for adverse consequences resulting from dynamic interactions between climate-related components: hazard, exposure, and vulnerability. Risk in the context of climate change involves multiple factors, including the likelihood and impact of hazards, the level of exposure to those hazards, and the vulnerability of individuals, communities, or ecosystems to their effects.



**Figure 3: Example of vulnerability**



## 2.2 IDENTIFYING WEATHER EVENTS AND RISKS IN YOUR AREA

**The Climate Change Committee’s 2021 Independent Assessment of UK Climate Risks** (CCRA3) outlines 61 risks and opportunities from climate change for the UK.

CCRA3 categorises the risks according to sectors, and the Health, Wellbeing and the Built Environment category contains the risks most relevant to health and social care (although there is undoubtedly overlap into other sectors).

These have been included in the Risk and Opportunities Tool to help you assess your changing vulnerability because of climate change. Examples of how two of the main extreme climate impacts (heatwaves and flooding) could impact health service areas can be seen in Table 1.

**Table 1: Examples of how heatwaves and flooding could impact health service areas**

| Service area (across all stakeholder organisations)     | Key impacts  |
|---|--|
| <b>Adult services and public health</b>                 | Excess deaths due to heatwaves, mental health issues due to flooding, new or more infectious diseases affecting the population.  |
| <b>Emergency planning, civil contingencies and fire</b> | Increased frequency and diversity of events including fires on open ground, flooding, damage to major local infrastructure, increasing antisocial behaviour during hot weather. Overall population resilience to repeated events may be eroded.  |
| <b>Transport and highways</b>                           | Existing structures not sufficient to manage flood waters. Damage to infrastructure due to heat and excess rainfall and the need to increase and maintain drainage. Increased risk from trees. Potential need to re-route longer term to avoid flood zones. Air quality, especially during hot, still weather affecting public health. |
| <b>Waste disposal</b>                                   | Rising water tables could impact landfill sites and lead to leeching of contaminants. Higher temperatures leading to odours, pests and public nuisance.  |

**Service area (across all stakeholder organisations)****Key impacts****Estates management**

Increased costs such as insurance for buildings or construction contracts.

Loss of productivity for example due to overheating or resources being diverted to flood investigations.

Suitability of existing buildings to provide a comfortable working environment in the longer term.

**Water quality and supplies**

Disruption to water supplies to health care sites and domestic dwellings impacting both service delivery and health and wellbeing.

**Delivery of health services is reliant on a network of organisations within the health and social care sector and wider partners. A stakeholder map for the Welsh health and social care sector has been developed to support you with getting started with stakeholder mapping. This map allows the user to focus on an individual organisation and see the connections to its partners within the PSB and the links to other organisations in the health board and Primary Care clusters.**

For social care delivery, the links between local authorities and health boards and PSB are shown. Each local authority will need to identify its network of care providers, and where there are links with care provision nationally and between neighbouring authorities.

It will be important to undertake stakeholder mapping to identify partners and risk owners – when developing a risk register not every risk that will be applicable to a particular organisation will

be owned by them and data sources to support risk monitoring and planning for adaptive measure may be owned by others. Having visibility and oversight (where appropriate) of where accountability sits across the sector is essential to ensure that roles and responsibility can be clearly articulated.

Wider stakeholders play an important role in health service provision, and as such, it is important to understand how they could be impacted by climate change so that they can be factored into any adaptation plan.

Examples of stakeholders' engagement with health service provision and possible impacts can be seen in Table 2 on the next page.

**Table 2: Stakeholders' impacts on health service areas**

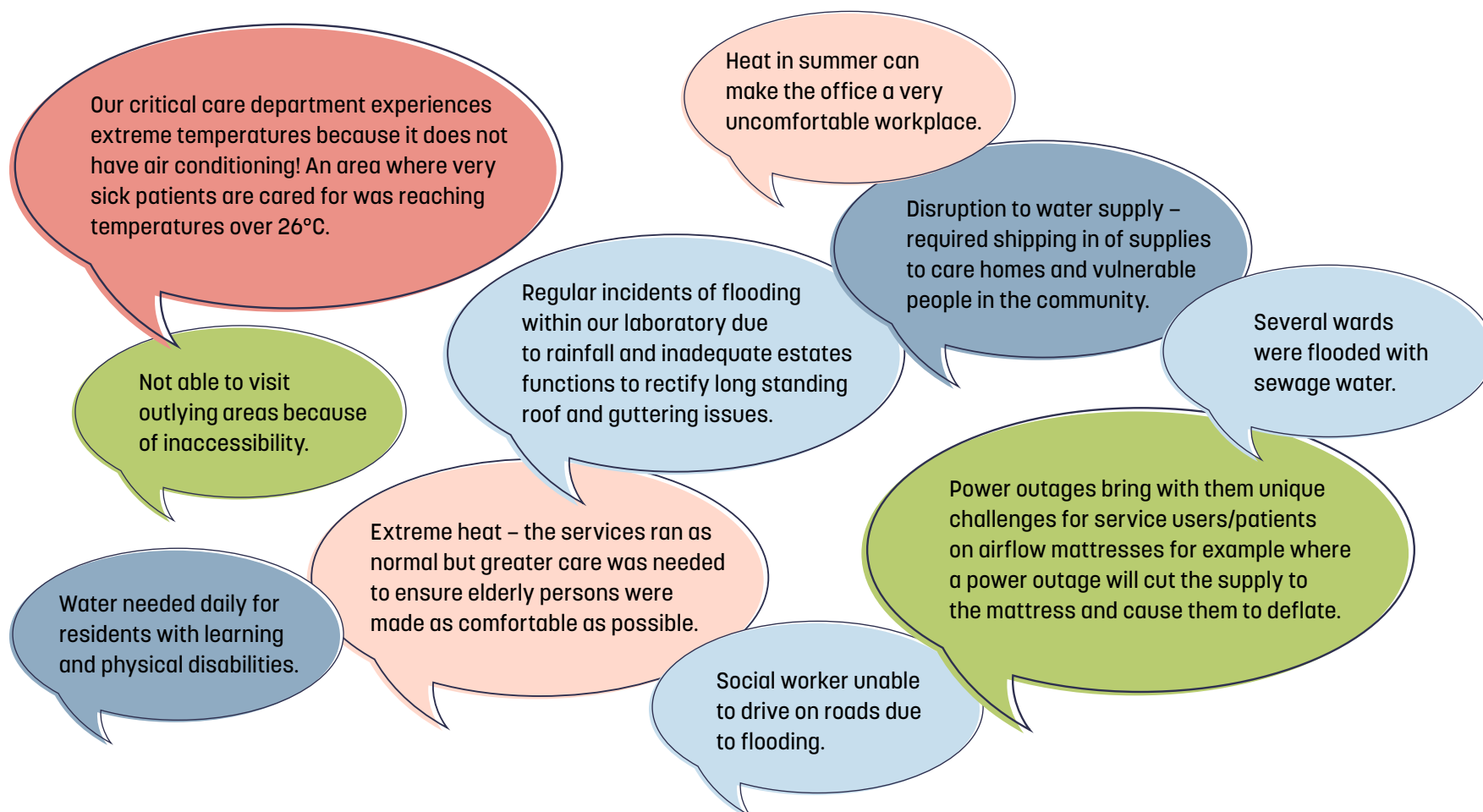
| <b>Service</b>                   | <b>Responsibility</b>   | <b>Key impacts</b>   |
|----------------------------------|---|--|
| <b>Utilities</b>                 | Utility companies (water, wastewater, electricity, gas, and communications) | Infrastructure damaged by extreme weather (most likely flooding) leading to service disruption and public health issues. Speedy recovery from any incidents is important due to the disruption caused and public health impacts.   |
| <b>Drainage and watercourses</b> | Landowners, drainage boards, canal trust                                    | Capacity, replacement, and maintenance of facilities. Managing the flow of flood waters is essential to ensuring that damage and disruption is minimised and demand on health services is minimised.   |
| <b>Planning</b>                  | Local authorities   | Location of new settlements and facilities to avoid flood plains etc. Management of surface water through sustainable drainage systems. Ability of built structures to withstand heat and provide a comfortable environment. Preservation of water resources and water quality. Sustainable landscaping. |
| <b>Transport</b>                 | Transport for Wales, Local Authority Highways                               | Damage to infrastructure due to extreme weather. Long term suitability of existing routes. Impacts access to health services, ability of ambulances to deliver service, mental health impacts from communities cut off from services.  |

## 2.3 HOW HAVE PREVIOUS WEATHER EVENTS AFFECTED YOUR ORGANISATION?



***Using the Risk and Opportunities Tool, review the examples with your service areas, and begin to record how and where these risks occur across your region, using recent examples of severe weather events (e.g. Storm Dennis, July 2022 heatwave).***

Examples shared by colleagues across the Welsh health and social care sector are shown below in relation to extreme heat, flooding major storms and disruption to water supplies.





## 2.4 IDENTIFY CRITICAL THRESHOLDS WHERE POSSIBLE

A critical threshold is the point in a system at which sudden or rapid change occurs. Thresholds may be:

- **Based on a physical property**, for example, the water level at which a river bursts its banks, or a temperature threshold above which machinery or medical equipment cannot operate effectively or
- **Based on attitude to risk**, for example, the one in 200-year event period that is a standard for assessing coastal flood risk.

Critical thresholds may also relate to positive opportunities – improved respiratory health from warmer temperatures for example, or increased access to outdoor activities and providing opportunities to improve health through exercise.

As the climate changes, critical thresholds will be exceeded more frequently than in the past – you will need to take these changes into account to manage your risks.



***It is important that you identify and understand your organisation's, and any relevant regulatory bodies', attitude to risk before you can come to any conclusions about what is an acceptable level.***

### **Suggested workshop – CRITICAL THRESHOLDS**

Working with relevant officers identify the main thresholds of your impacted service areas considering service level and geographic location.

Work through each of the events you identified in Step 1.5 and consider the threshold level for each impacted service area and the number of times it has been exceeded.

## 2.5 HOW WELL DID YOUR ORGANISATION AND ITS PROVIDERS COPE WITH PAST WEATHER EVENTS?

Engaging with your estates, business continuity planning and commissioning teams:



- ***Identify actions taken to deal with past weather events (recent events such as Storms Dennis and Gerrit, and the July 2022 heatwave).***
- ***Describe how effective those actions were for workforce management, managing service disruption and increased demand and damage to assets.***

Record what characteristics enabled you to cope with that event, or what would have helped you to cope better. For example:



- ***Leadership.***
- ***Communication systems.***
- ***Business continuity management.***
- ***Emergency and contingency plans, including faster response actions etc.***

Understanding what prevented an adequate response will inform appropriate adaptation actions (Step 4).

The workshop at Step 1.5 would work well at this stage and the critical thresholds activity, with partner organisations and providers.

**3 FUTURE CLIMATE VULNERABILITY**

**This step contains information on how the climate is expected to change and will help you to assess how those climatic changes could affect your organisation. Reviewing the Risk and Opportunities Tool, and the PHW Health Impact Assessment at this stage will help in this assessment process. As you complete the activities in this step you will:**

---

Understand how the climate in Wales is expected to change, and where to access the data




---

Determined what risks those climate impacts pose to you, and how important they are in relation to other risks




---

Identified the main climate and non-climate impacts for your organisation and assets




---

Identified your priority climate risks that need an adaptation response



## 3.1 HOW IS THE UK CLIMATE EXPECTED TO CHANGE?

The UK Climate Projections 2018 (UKCP18) provide an up-to-date assessment of how the UK climate may change during the 21st Century.

The UKCP18 headline message states that the UK will experience warmer, wetter winters; Hotter, drier summers, with increased extreme weather events and sea level rise. **This applies to Wales.**

Extreme weather events are rare but often have the most significant impacts. Some events, such as very hot days and intense rainfall, become more common, however, weather extremes are difficult to predict so future information and projections are less certain.

UKCP18 provides a number of datasets (products) that will support your risk assessment activity and the identification of critical thresholds. Accessing the right products is important for these activities – for example to support a risk assessment for health care assets within a particular location in relation to projections on maximum temperatures.

For further information on how to navigate the UKCP18 website and access the information you need please visit the **[Met Office web pages for the user interface for UKCP18.](#)**

Other tools that can support the identification of risks, and provide information about the impacts on health outcomes and access to healthcare services are highlighted opposite:

### **Public Health Wales Health Impact Assessment**

The report aims to facilitate efforts to address climate adaptation and resilience in Wales by presenting evidence on the broader health effects of climate change in the region. It seeks to illustrate the implications of climate change for individuals in their everyday environments, encompassing economic, social, environmental, and mental well-being.

### **Local Climate Adaptation Tool (LCAT)**

- How local climates will change.
- What health and community impacts may occur as a result.
- Who will be most vulnerable and why.
- Which adaptations to consider.

LCAT is evidence-based and designed with and for local decision makers.

### **Climate Just**

Climate Just is an information tool designed to help with the delivery of equitable responses to climate change at the local level. Its main focus is to assist the development of socially just responses to the impacts of extreme events, such as flooding and heatwaves, as well as supporting wider climate change adaptation. It also includes issues related to fuel poverty and carbon emissions.

The outputs from these tools will be helpful for identifying critical thresholds.

## 3.2 WHAT ARE THE MAIN CLIMATE IMPACTS FOR MY SECTOR OR LOCATION?

As seen in Step 2, The Climate Change Committee's (CCC) 2021 Independent Assessment of UK Climate Risks shows that the most likely extreme weather events the UK will experience are:

- Storms causing structural damage, disruption to essential infrastructure and travel.
- Storm surges causing flooding and coastal erosion.
- Heavy rain leading to fluvial and surface water flooding.
- Heatwaves causing health issues for vulnerable people.
- Extremely hot days causing heat stroke and disruption to travel and work.
- Cold spells leading to travel disruption and potential failure of infrastructure, such as power supplies.
- Extended dry periods leading to pressure on water supplies.

Link to the [CCRA3 documents in resources section](#).

The 2023 [Adapting to Climate Change: Progress Report for Wales](#) from the CCC and the monitoring map for health highlight flood risk and extreme heat and the requirement for additional cooling as of major concern to deliver the outcomes.

### The CCC identified the following priority risks in CCRA3 to Health, Communities and the Built Environment:



|    |  |
|----|--|
| 1  | Risks to health and wellbeing from high temperatures                   |
| 2  | Opportunities for health and wellbeing from higher temperatures        |
| 3  | Risks to people, communities and buildings from flooding               |
| 4  | Risks to the viability of coastal communities from sea level rise      |
| 5  | Risks to building fabric   |
| 6  | Risks and opportunities from summer and winter household energy demand |
| 7  | Risks to health and wellbeing from changes in air quality              |
| 8  | Risks to health from vector-borne disease                              |
| 9  | Risks to food safety and food security                                 |
| 10 | Risks to water quality and household water supplies                    |
| 11 | Risks to cultural heritage   |
| 12 | Risks to health and social care delivery                               |
| 13 | Risks to education and prison services                                 |

## 3.3 ARE THERE INDIRECT IMPACTS TO CONSIDER?

Some indirect impacts may emerge when answering the question from Step 3.2, but considering them explicitly will help ensure you don't miss out something very important.

### Could there be any knock-on effects?

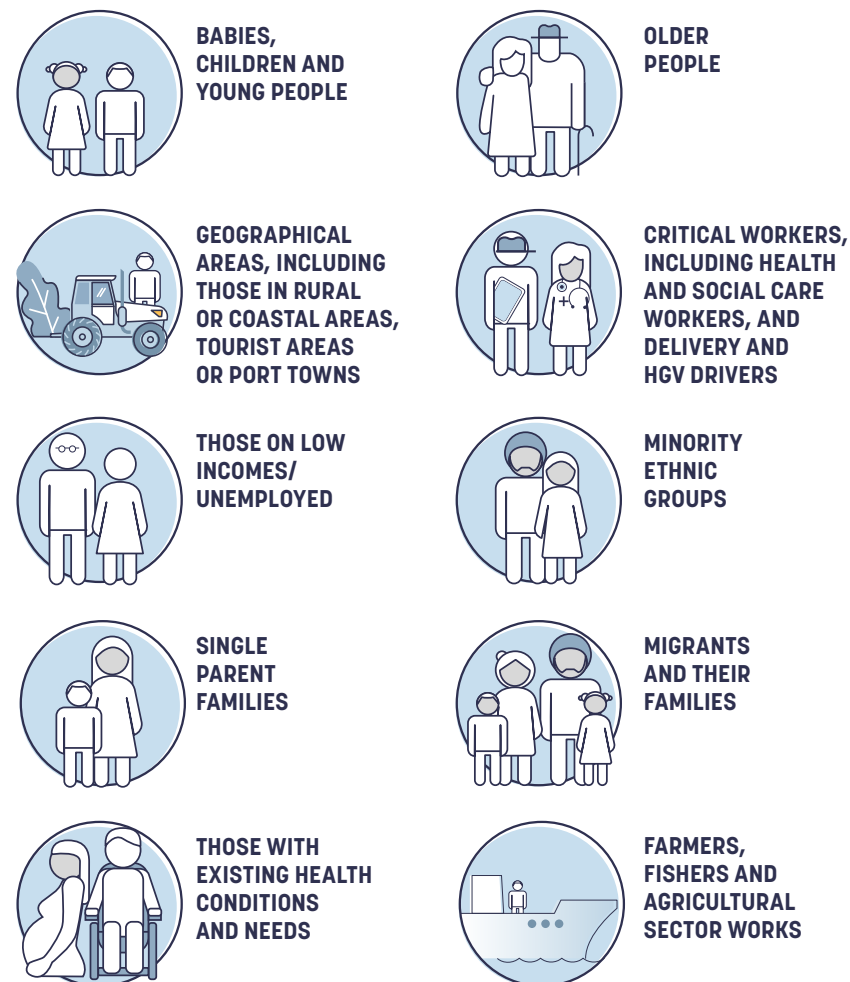
For example, the Welsh tourist industry could gain from a longer tourist season and more reliable summer weather. However, increasing numbers of tourists would increase demand for water at a time of decreased water availability, and add to demand for health services.

There may be other non-climate factors such as industry or market trends (supply chain engagement and liaison with your network of care providers) that could indicate new threats or opportunities that are not currently an issue.

Consideration needs to be given to hidden vulnerabilities. Some individuals and groups may be especially vulnerable to both the direct and indirect impacts of climate change. The **Public Health Wales Health Impact Assessment** provides guidance and information about the groups who may be more vulnerable to climate change (Figure 4).

For example, an elderly person who cannot drive may be vulnerable during a flood – even if their home is not affected – if the bus to the GP or pharmacy is cancelled.

Extreme weather in one location can lead to damage elsewhere, so it is important to consider the potential impacts in nearby or adjacent health board areas.



**Figure 4: Population groups most exposed to cumulative impacts to climate change**

## Are there indirect impacts to consider?

The PSB Wellbeing Assessments are a good source of specific information for wider consideration of vulnerabilities that may be exacerbated by climate change.

### **Suggested workshop – INDIRECT IMPACTS**

*(for officers)*

#### Task

- Using the information identified in the Risk and Opportunities Tool, explore how climate change in Wales (using UKCP18 projections data for temperature and rainfall extremes) will impact your service areas and asset management.
- Explore the LCAT and Climate Just outputs alongside the service specific risks you have captured to support the identification of particularly vulnerable groups.

- Using the critical thresholds identified in Step 2, capture where, when, and how often these might be exceeded due to climate change – this will be important when considering the decision making timescales in the Risk and Opportunities Tool.

This workshop will explore and identify potential indirect impacts to your service delivery, patient groups, partner organisations and providers, to further develop the risk register and inform the development of an action plan.

## 3.4 WHAT RISKS DO THESE CLIMATE IMPACTS PRESENT?



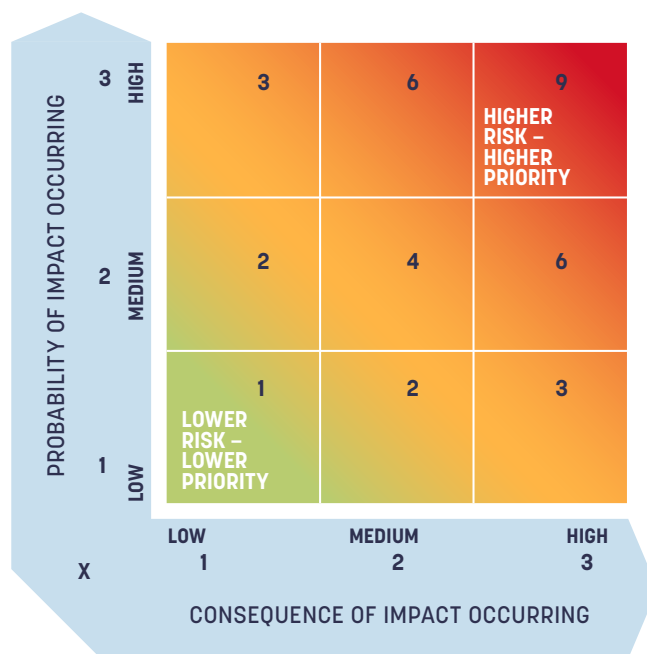
**Having identified the potential impacts on your organisation you need to determine the risk of each of those potential impacts to help prioritise your adaptation options.**

A risk assessment involves assessing:

- The probability, or likelihood, of the impact occurring and
- The magnitude, or consequence, of the impact should it occur.

The product of these factors represents risk:

$$\text{The probability of occurrence} \times \text{The consequence of impact} = \text{Risk}$$



Impacts that are highly likely to occur, and which would have serious consequences, would be considered high risk, high priority impacts and would fall into the red, top right corner of Figure 5. Insignificant impacts that are unlikely to occur would present little risk and would fall into the green, lower left corner of the diagram.

**Figure 5: Shows how the combination of likelihood and consequence contribute to assessing the risk of an impact**





***Your organisation will have its own in-house risk assessment methods (guidance within the NHS Strategic Planning Framework and local authority guidance for social care), that ideally should be used.*** This is important for embedding into business as usual to assess risk to service delivery.

It is also important to consider the non-climate changes that may affect future risks, for instance:

- An ageing population – the elderly are particularly vulnerable to extreme heat.
- The **groups highlighted by PHW with increased** vulnerability.
- Increase in long term, chronic illness.
- Meeting net-zero targets can affect options to cool buildings, moving away from air conditioning to passive ventilation.

**Will climate risks be more or less important than others?  
How will climate risk exacerbate existing risks, or increase demand for healthcare services?**

As seen in Step 1.6, climate risk is likely to be just one of a number of factors.

### **Risk Register Development – using the Risk and Opportunities Tool**

The Risk and Opportunities Tool has been developed to provide a starting point for development of your risk register. The tool guides you through the following:

- CCRA3 Risk reference.
- Potential data sources and indicator owners.
- Examples of specific risks related to the CCRA3 risks for Health (H01-H13). It is likely that you will need to develop additional specific risk pertinent to your local circumstances and service needs.
- Examples of proposed risk treatments, again you will need to consider local circumstances and service needs.
- Risk ownership – linked to stakeholder mapping activities.



- Which adaptation outcomes the risk relates to.
- Risk scoring.
- Type of decision – you will need to consider whether this has financial, clinical or structural/service design impact.
- Longevity of decision - time horizons for decision making may correspond with IMTP, Corporate Plans, Strategic Delivery Plans.
- Decision makers – who will be required to sign off on this action? Does this require Ministerial or Cabinet Member approval? Directors of Planning/Primary care/Public Health? Service leads?



Using the Risk and Opportunities Tool and the additional risks you have identified for your service, score the risk of each of the potential impacts to help prioritise your adaptation options.

## Understanding types of risks

The checklist of risk categories may help you to think about the full range of risks you should be evaluating.

**Table 3: Examples of how heatwaves and flooding could impact health and social care**

| Category of risk   | Relating to...   |
|--|--|
|  <b>External</b>    |  |
| Infrastructure   | Highways, transport systems for staff, power supply systems, suppliers, business relationships with providers, dependency on internet, cloud services and email. |
| Economic   | Interest rates, exchange rates, inflation impacting on supply chains for equipment, medicines and capital projects.  |
| Legal and regulatory   | Laws and regulations which if complied with should reduce hazards (e.g. Health and Safety at Work Act).  |
| Environmental  | Fuel consumption, pollution, condition, and connectivity of green spaces, biodiversity vulnerabilities and wider natural capital assets.                         |
| Political  | Possible constraints such as change of government, central or local.   |
| Market   | Issues such as competition and supply of goods and medicines.  |
| Hazards  | Issues such as fire, flood, earthquake, drought affecting access to and demand for health services.  |
|  <b>Financial</b> |  |
| Budgetary  | Availability of resources or the allocation of resources.  |
| Fraud or theft   | Unproductive loss of resources.  |
| Insurable  | Potential areas of loss which can be insured against.  |

| Category of risk   | Relating to...  |
|--|---|
| Capital investment   | Making appropriate investment decisions.                                    |
| Liability  | Right to sue or being sued in certain circumstances.                        |
|  <b>Activity</b>          |   |
| Policy   | Appropriateness and quality of policy decisions.                            |
| Operational  | Procedures employed to achieve particular objectives.                       |
| Information  | Adequacy of information used for decision making.                           |
| Reputational   | Public reputation of the organisation and consequent effects.               |
| Transferable   | Risks which may be transferred, or transfer of risks at inappropriate cost. |
| Technological  | Use of technology to achieve objectives                                     |
| Project  | Project planning and management procedures.                                 |
| Innovation   | Exploitation of opportunities to make gains.                                |
|  <b>Human resources</b> |   |
| Personnel  | Availability and retention of suitable staff.                               |
| Health and safety  | Well-being of people.   |

## 3.5 WHAT ARE THE HIGH PRIORITY RISKS THAT NEED AN ADAPTATION RESPONSE?

The climate change impacts that present risks to your organisation, assets and service delivery should now be clear. This step guides you in exploring potential solutions to the impacts that pose the most immediate risks (and potentially opportunities too). Step 4 (Adaptation options) provides further information on identifying adaptation responses to priority risks.



***The risks identified in Steps 3.2, 3.3 and 3.4 should be reviewed against your wider strategic plans, corporate delivery and operations plans, risk registers and business continuity plans and budgets in order to clarify the priority risks.***

These questions can help you assess the necessary response:

- What are the high impact/high priority risks that you face already?
- Which risks will increase most rapidly due to climate change? At what point do they cross a critical threshold?
- Which risks will take the most time to plan and implement an adaptation response against?
- Is there a non-climate driver or solution for taking action, such as health and safety, mitigation or reputation?
- Would investment today save you money in the future when the adaptation option becomes more expensive?
- Could a minor risk today become a major risk in the future?

Using the risk tool, with the UKCP18 data, information you may have gathered from the PHW HIA, LCAT and/or Climate Just and the answers to the above questions you should have a list of priority risks and adaptation measures/interventions.

- The risks that are red will require critical and immediate intervention, whereas the risk you may have flagged as amber and green may have more time allowable for continued monitoring before deploying an intervention.
- Following this in-depth review of and prioritisation of risk and interventions, it may be necessary to commission more detailed technical risk studies (for example with public health consultancies, building surveyors, Transport for Wales, Natural Resources Wales or a technical engineering consultancy) in order to develop the business case for major infrastructure investment or decision making on policy changes or investment.

## 3.6 DO YOU NEED TO FIND OUT MORE?

You may need to find out more about your organisation's vulnerability to certain risks before deciding on an adaptation plan. For instance, any economic analysis will be specific to different regions and sectors. It will also be very sensitive to any commercial changes, for example in the supply chain for services and medicines.



***We suggest that you:***

- Continue to investigate your organisation's vulnerability to the climate change impacts of which there is greatest uncertainty (e.g. sea level rise).
- Conduct further research within your organisation or in collaboration with external consultants or health academics in relation to new vector borne pathogens for example.
- Consider non-climate risks that your organisation faces.
- Quantify the likely costs of your climate risks (including costs of inaction). If necessary, commission experts to assess this.

Flexibility is important when thinking about future risk due to the uncertainty in climate projections. The scale or importance of a particular risk may have to be reassessed due to changes, such as updated climate projections.

Continuous reassessment of the efficacy and viability of responses to future risks is also essential. See Step 5 Monitoring & Evaluation for more information on this.

Link to the [resources section](#).

## 4 ADAPTATION OPTIONS



The activities in this step will help you to identify a range of adaptation options and begin to prepare an adaptation plan. As you complete the activities in this step you will:

Understand the types of adaptation strategy



Develop an implementation plan



Review and evaluate a range of adaptation options



## 4.1 TYPES OF ADAPTATION STRATEGY

The **Independent Assessment of UK Climate Risk**, published by The Climate Change Committee in 2021 as advice to Government for CCRA3, identifies 10 principles of good adaptation for the UK for the next five years that could be useful in assessing your adaptation options (Figure 6). The global warming scenarios explored in the UKCP18 data suggest that we could reach a scenario of 2°C warming by the late 2020s, and 4°C warming by 2060s onwards. Adapting now for a 2°C world and risk assessment for a 4°C world is recommended by the CCC.

### 2°C and 4°C worlds in the UK – reproduced from the Met Office.

Relative to present day, at 2°C of global mean warming there is little spatial variation in the median annual mean warming, with a uniform warming of 1 to 2°C across the country. Warming is slightly larger in summer than winter, with summers warming more in the south east, by up to 4°C, decreasing toward the north and west. Percentage precipitation changes vary seasonally with some indication of drier summers and slightly wetter winters. Changes to UK climate at a global mean temperature increase of 4°C include summers warming more than winters, but that the uncertainty in winter “warming” is larger. Summer warming is largest in the south with median temperature increases of up to 5°C. Warming in winter is more uniform across the country and is limited to under 4°C. Precipitation changes indicate wetter winters and drier summers with summer drying largest in the south with median reductions of 40 to 60% possible across England and Wales.



**Figure 6: 10 principles of a well-adapted UK**

The Climate Change Committee continue to develop the approach to the methodology for understanding climate risk and will be publishing its Fourth Independent Risk Assessment in 2026.

The following table shows the different adaptation types – consider these in the context of the critical thresholds you have identified for the 2°C world and the 4°C world.

| Adaptation strategy type   | Notes   |
|--|---|
| <b>Proactive</b>   | Acting in anticipation of potential risks or opportunities, with the aim of preventing or mitigating negative impacts and maximising positive outcomes. Proactive actions may involve implementing measures to address current and future risks or opportunities before they escalate or fully materialise. |
| <b>Reactive</b>  | Responding to risks or opportunities after they have already occurred or become apparent. Reactive actions may involve addressing immediate needs or consequences, often in response to a specific event or situation.  |
| <b>Strategic</b>   | Planned, coordinated, and forward-thinking approaches to addressing climate risks and opportunities. Strategic actions may involve long-term planning, resource allocation, and decision-making aimed at achieving specific objectives related to climate adaptation and mitigation.                        |
| <b>Use of risk-based policy and project appraisal process and techniques</b> | Proactive: organisations that adopt risk assessment will be more flexible and better able to cope with climate risks.   |
| <b>Delay and buy-time</b>  | Proactive: a delay strategy can help to deliver a better decision, if the delay time is used to improve your knowledge – for instance by combining it with research or monitoring.  |
| <b>Research</b>  | Proactive or strategic: use research to better understand climate risks and performance of adaptation options.  |
| <b>Monitoring</b>  | Proactive: system performance monitoring. Reactive: climate impact monitoring.  |
| <b>Information supply, education, awareness-raising</b>                      | Proactive or reactive: can be used to raise awareness of the need to adapt.   |
| <b>Contingency planning</b>  | Strategic: planning for low probability, high consequence events.   |



| <b>Adaptation strategy type</b>                             | <b>Notes</b>  |
|---|---|
| <b>Diversification or bet-hedging</b>                       | Proactive: technical or policy response.  |
| <b>Insurance</b>  | Proactive: fiscal response.   |
| <b>Defend and manage</b>                                    | Proactive or reactive: technical measures.  |
| <b>Change of use</b>  | Proactive or reactive: includes planning responses, with or without technical measures. |
| <b>Retreat and abandon</b>                                  | Proactive or reactive: includes strategic planning response.                            |
| <b>Safety factors, climate headroom, buffering measures</b> | Proactive or strategic: includes technical and regulatory response.                     |

## 4.2 IDENTIFY A RANGE OF ADAPTATION OPTIONS

Planned adaptation is often described as either **Building Adaptive Capacity (BAC)** or **Delivering Adaptation Actions (DAA)**. In practice, many capacity building actions are also adaptation actions, but distinguishing between the two can help you think around options.

**Building Adaptive Capacity (BAC)** involves developing the institutional capacity to respond effectively to climate change. This means compiling the information you need and creating the necessary regulatory, institutional, and managerial conditions to undertake adaptation actions. BAC activities include:

- Gathering, using, and sharing information (e.g. undertaking research, monitoring data and health impacts, and raising awareness through education and training initiatives, making long term decisions based on evidence).
- Creating a supportive institutional framework (changing standards, legislation, and best practice guidance, and developing appropriate policies, plans and strategies).
- Creating supportive social structures (changing internal organisational systems, developing personnel or other resources to deliver the adaptation actions, and working in partnership).

**Delivering Adaptation Actions (DAA)** involves taking practical actions to make your organisation more climate resilient either by reducing vulnerability to climate risks, or to exploit positive

opportunities and may range from simple low-tech solutions to large scale infrastructure projects. DAA can include:

- Accepting the impacts, and bearing the losses that result from those risks (e.g. managed retreat from sea level rise/ coastal erosion).
- Off-setting losses by sharing or spreading the risks or losses (e.g. through insurance).
- Avoiding or reducing your exposure to climate risks (e.g. building new flood defences, or changing location or activity).
- Exploiting new opportunities (e.g. engaging in a new activity, or changing public health practices to take advantage of changing climatic conditions).

Another way of considering adaptation options is to think of the types of actions that can be taken:

- Temporary (e.g. use large umbrellas or shading to reduce solar heat gains).
- Managerial (e.g. introduce flexi-time, facilitate working from home, adjustments to home care delivery for smaller location boundary).
- Technical (e.g. refurbish building, enhance flood defences).
- Strategic (e.g. commission new building with climate resilient design as part of a planned programme).

## 4.3 EVALUATE YOUR ADAPTATION OPTIONS



***You now need to assess the ability of each of your adaptation options to achieve your strategic objectives. Your organisation may have its own criteria which you should use, or if not, select from the list:***

---

**Effectiveness** – will the actions meet your objectives and if so, how?

---

**Legitimacy** – is it politically, ethically, and socially acceptable?

---

**Efficiency** – do the benefits exceed the costs? If not, how can they?

---

**Urgency** – how soon could each option be implemented?

---

**Equity** – the action should not adversely affect other areas or vulnerable groups.

---

**Costs** – consider social and environmental costs, not just economic.

---

**Flexibility** – is each option flexible and will it allow for adjustments and incremental implementation?

---

**Robust** – is each option able to cope with a range of future climate projections?

---

**Sustainability** – does each option contribute to sustainability objectives, and are they themselves sustainable?

---

**Synergies/coherence with other strategic objectives** – does each option help to achieve other objectives?

---

**Practical** – can the action be implemented on relevant timescales?

---

When evaluating your adaptation options, the following process can be helpful:

---

**Establish the criteria** against which you will evaluate your long list of adaptation options.

---

**Agree on the evaluation criteria** that are most relevant.

---

**Describe** and make a note of each of these criteria so that everyone involved has a shared understanding.

---

**Assess** each option in turn and score their performance against each of the criteria.

---

---

**Weight the criteria** to reflect the most important to your organisation, assets and service delivery.

---

**Not all options will meet all criteria.** However, the more criteria an option meets, the more suitable it is likely to be.

---

**Keep a record** of your assessment and decision-making, and make a note of any assumptions or judgements.

---

## 4.4 FACTORS TO CONSIDER WHEN EVALUATING OPTIONS

### How soon do you need to act?

If you are already experiencing problems with climate-related impacts, you may wish to address those risks straight away.

If you are considering a project with a long lifespan, it is crucial that you take account of climate change as early as possible in the decision-making process. It is much cheaper and easier to incorporate adaptation options at the design stage than to introduce them late in the planning process, or after an asset has been built. Other factors that will determine the time frame for your adaptation plan include how soon you expect any critical thresholds to be exceeded, and the lead-in time for planning and implementing adaptation measures.

**Remember that proactive adaptation is generally more effective and less costly than reactive adaptation.**

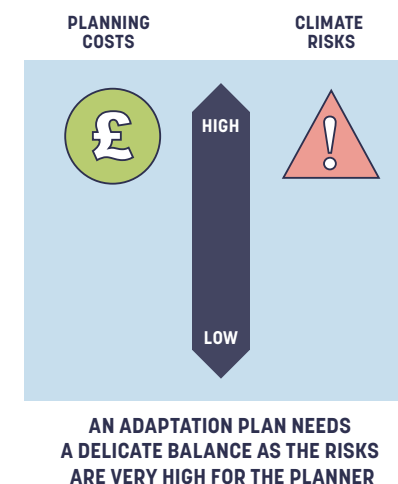
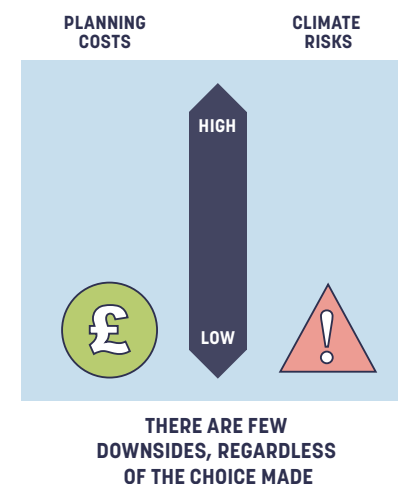
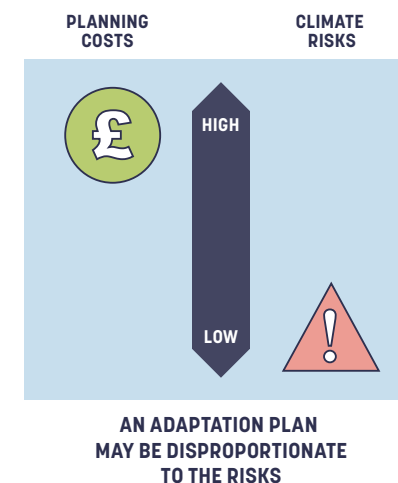
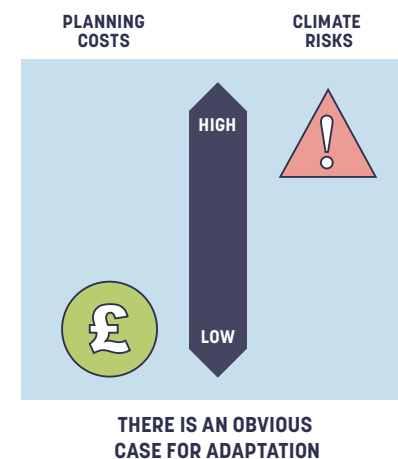
### What level of adaptation is required?

Although the science is confident in the general trends for our future climate, we cannot be sure exactly how much change will occur, and precisely what the impacts will be. As a result, there will be some uncertainty over the 'ideal' level of adaptation needed locally, the 2°C world is generally accepted as a minimum.

How much adaptation you plan will depend on local risk levels, on your attitude to risk, and the costs involved. You will need to find a suitable balance between:

- Not adapting and managing the costs and consequences.
- Adapting to a level of risk and accepting the costs of the remaining or residual risks.
- The cost of an adaptation plan and the benefits of those actions.

For example:



To help you think about your adaptation options, compare the benefits of adaptation with the costs of implementation, discounted over time. **The adaptation option you choose should offer the highest net benefit, taking account of the risks and uncertainties surrounding climate change.**

The CCRA3 includes an additional report on the **Monetary Valuation of Risks and Opportunities**, which highlights that adaptive action in relation to extreme heat and flooding can be considered as “no regret” actions, and that there are benefits to early action both in relation to costs and public health co-benefits. Delayed action on adapting to heat and flood risk will result in inevitable larger future costs as the opportunities to increase resilience decline over time. The costs of individual adaptive measure will be site and context specific.

### **Are there “windows of opportunity” for implementing adaptation?**

Look for ways of incorporating climate response strategies into your mainstream activities and think about how they work with or against your other strategies and policies and investment plans. The costs of adaptation can be minimised when it is factored into:

- The early steps of planning new developments.
- Infrastructure that is being upgraded anyway.
- Routine maintenance that is being conducted.
- Plans that come up naturally for review.
- Your routine work plan rather than being dealt with as an emergency situation.

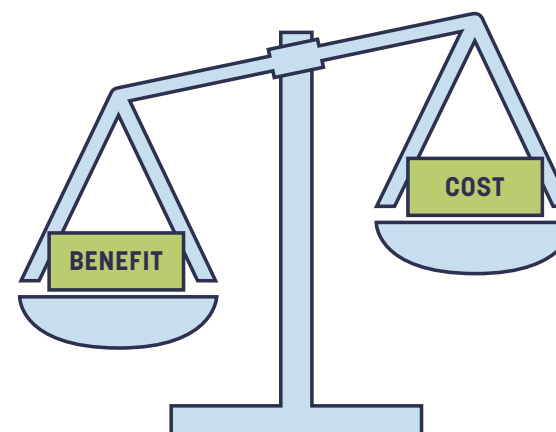
### **What happens if you over-adapt or maladapt?**

Thinking back to your organisation, assets and service delivery risk appetite and how much risk is acceptable, will have an impact on your plan and proposed options.

If you over-estimate the importance of climate risks compared to the other risks you face, you may over-adapt, leading to a waste of resources.

If you under-estimate climate risks compared to your other organisational risks, and don’t include sufficient adaptation measures, you will not be well enough protected (maladapted).

Adopting a flexible decision-making process and using adaptive management – or “learning by doing and adapting based on what’s learned” – can help you to keep your options open, and be more responsive to changing situations.



## 4.5 DEVELOP AN IMPLEMENTATION/DELIVERY PLAN

You should now have all the information you need to either:

- Embed climate risk management into decision making (a useful resource may be the **Supplementary Green Book Guidance – Accounting for the effects of climate change**).
- Develop a detailed implementation plan:
  - Setting out what needs to be done, by whom, how and by when.
  - Embed practical action(s) into service provision and asset management.

Your chosen adaptation actions and your organisation's internal procedures will strongly influence what you need to do and how you go about it. Additional sources of information that will inform the implementation plan could include:

- Public Health Wales Health Impact Assessment.
- **Building Regulations 2010** (due to be updated at time of writing).
- **Flood and Water Management Act 2010**.
- Welsh Local Government Association.
- Public Services Bodies – stakeholder mapping and oversight of regional risk assessments.
- Natural Resources Wales – Guidance for Risk Assessments and flood risk information.

- Climate Change Committee Health Technical Briefing Note.
- **Planning for a Resilient Healthcare Estate: Welsh Health Building Note**.



*While the combination of these factors means that every adaptation plan is unique, there are a number of important factors you must consider when developing your plan:*

### **What or who needs to change to enable adaptation to climate change?**

Look back at the barriers and constraints highlighted in Step 1.4 to understand what impediments to implementing adaptation options might exist.

### **Who has to be involved for each option to be effective? What other inputs are needed from partners?**

Adaptation actions are likely to require information, knowledge, finance, or time from others. Make sure you take this into account when assessing options and developing your implementation/delivery plan:

- Estates.
- Clinical leads.
- Directors of Planning, Directors of Primary Care.
- Social care providers.

### **Are there other organisations facing similar problems? (cooperation, co-financing etc.)**

Ask who could be involved as well as who should be. There may be opportunities to work across a particular sector or with other organisations facing similar or complementary challenges.

The PSB will have undertaken risk assessments on a regional approach, collating information, data and risk registers from the organisations within its boundary. Health boards, primary care clusters and local authorities will form an important part of this network of organisations. Please refer to the **stakeholder map** to see who the other health organisations that your organisation or service is connected with to explore opportunities for collaboration.

### **How might vulnerable groups be affected?**

It is important that you consider the likely impacts of your strategy, positive or negative, on the specific groups identified by PHW as more vulnerable. Is it possible to ensure that those most vulnerable to the impacts benefit directly from the plan?

### **What can be learnt from other organisations who have dealt with comparable situations?**

Make use of what others have implemented and learnt to maximise the impact of your adaptation plan. **Sustainability West Midlands** has case studies for adaptive measures that have been implemented in hospitals in England and Scotland.

### **Do these options make use of existing organisational strengths?**

Ask whether you are making use of your existing strengths and capacities. For example, if your organisation already has strong risk management expertise, make use of these skills in the planning process.



## 4.6 IMPLEMENT/DELIVER YOUR ADAPTATIONS

An adaptation action plan that is ready to implement should be specific to your organisation, assets and service delivery risk levels and may incorporate the following:

- Clearly identifies roles and responsibilities for the individuals involved.
- Describes how adaptive measures should be implemented (e.g. through new or existing management systems).
- Identifies opportunities that could be exploited to incorporate climate adaptation with other planning and development projects.
- Indicates what resources (staff, facilities, capital) will be required to implement the adaptations and monitor their effectiveness.
- Notes what institutional and community support will be required to implement the adaptations.
- Contains an effective communication strategy.

How you implement your adaptation plan will also depend on the specific options you are considering and the structure of your organisation.



***Make sure you have an effective process for monitoring and evaluating progress in place before you start (see Step 5).***

Link to **resources**.

**5 MONITORING & EVALUATION**

**This step focuses on monitoring and evaluation of the adaptation options implemented in the previous step. This should be going on throughout the process, as it is critical any adaptation strategy remains a live document that is constantly assessed to make sure it is still fit for purpose. As you complete the activities in this step you will have:**

---

Reviewed the CCC Adaptation Monitoring Framework




---

Explored indicators and metrics for evaluation



## 5.1 THE ADAPTATION MONITORING FRAMEWORK

A new national approach to adaptation monitoring is being developed by the Welsh Government to support the new national climate resilience strategy due to be published in autumn 2024. This will align to the CCC’s framework and will include monitoring of adaptation indicators in relation to health and health services.

The CCC **Adaptation Monitoring Framework** is a refreshed approach to monitoring progress on adaptation, with particular focus on evaluation of delivery and implementation, and policies and plans being in place. The framework is centred on the principles of a well adapted UK (Figure 6) and there are “monitoring maps” developed for the thirteen themes of the CCRA3.

This approach focuses on evaluation of relevant policies and plans being in place and monitoring the implementation and delivery of adaptive actions – based on the ten principles of a well-adapted UK. The monitoring map for health in the Progress Report for Wales sets out what is required for well adapted Welsh healthcare system and improved health outcomes.

The development of risk and opportunity registers, setting out roles and responsibilities across healthcare settings and wider stakeholders, and understanding the time horizons for key plans and the likely programme of delivery of adaptive measures (for example cooling measures and adjustments to the delivery of care), will need to be key considerations for adaptation plans that follow the components in the monitoring map for health.

The CCC Adaptation Progress Report sets out recommended approach to monitoring progress (monitoring maps).

When designing the adaptation plan for your service or organisation it is recommended that you follow this format to ensure that you have considered all the building blocks (contextual factors, policies, enablers, required outcomes and goals) for appropriate and timely interventions.

## 5.2 WHAT IS THE PURPOSE OF MY EVALUATION?

- **Evaluate effectiveness** – have you achieved your objectives? Was the intended objective appropriate or needed? If not, to what extent have you achieved your objectives?
- **Assess efficiency** – explore the costs, benefits and risks involved, and the timeliness of actions.
- **Understand equity** – what are the effects of the project on different social groups, has the intervention targeted the right people, are certain groups exposed to disproportionate risks?
- **Provide accountability** – ensure that commitments, expectations, and standards are met.
- **Assess outcomes** – understand the outcomes of an intervention and its impacts. The avoidance of negative consequences can be a successful outcome, but can be hard to measure and assess.
- **Improve learning** – what works and why? Sharing knowledge and experience helps to make future adaptation interventions more efficient and cost effective.
- **Improve future interventions** – a strong focus on learning.
- **Compare with other similar interventions** – understand how the impact of an intervention varies in different locations or communities, or compare the implementation and outputs of differing adaptation options.

## 5.3 EVALUATION CRITERIA

Criteria include:

- Baseline of existing conditions (are the policies and plans in place, risk assessments available?).
- Indicators – evidence that a condition exists or certain results have or have not been achieved, and can be either quantitative or qualitative.
- Metrics refer to a quantitative unit of measurement.

If your evaluation includes health outcomes there may be particular data sources or standards which apply to your evaluation. Evaluation and reporting should align to established reporting and planning cycles within the sector (for example reporting on DAPs, EFMPs and IMTP).

### Baseline

Use the following questions to help you think about a baseline and the selection of indicators. Ensure your investment in baseline data is proportionate.

- Will your baseline provide a clear picture of the type and nature of both climate and non-climate vulnerabilities and impacts? As climate change will not be the only risk you are thinking about, it is important to understand non-climate issues too.
- For medium and long-term interventions, are you able to distinguish the differences between your actions and changes in baseline conditions?
- How often should you check your baseline to assess how conditions have changed? This will be influenced by the length of the proposed activity (both in terms of delivery and expected impacts), the timing of key decision points and the likely rate of change from the baseline.

- How will data availability change during the course of the project? Can new data be incorporated into your baseline?
- Critically, do you think your baseline will help you make better decisions during and after the intervention?

### Developing evaluation metrics

Metrics are useful evaluation criteria as they are objective, transparent and can be easily reproduced. Metrics can provide simple progress checks which can be understood by a wide range of users – examples may be the number of wards or sites requiring additional cooling in periods of extreme heat, or an increase in emergency admissions during extreme heat or flood events.

Process indicators can help you to measure how a service or intervention has been delivered. In adaptation, the point where the outcome can be evaluated is often further in the future – particularly in relation to long term health outcomes. Process indicators allow you to consider whether the direction of travel is correct given the current information. For example, it may not be possible to determine whether a 20-year project will deliver adaptation benefits in a socially equitable way in year three, however, you could ensure the design of the project includes engagement of all social groups.

Work is developing with PHW and the UKHSA on indicators and metrics for health outcomes and access to health services. Examples may include prevalence of heat stroke or skin cancer and mortality rates in relation to extreme heat, and the number of sites/proportion of workforce impacted by flooding. As you work through the steps in this toolkit you may identify data sources for appropriate metrics to support the evaluation of your plan.

## 5.4 MEASURING PROGRESS AND PERFORMANCE

### Questions to consider

- What were the objectives of the adaptation intervention and have these been achieved? If not, to what further extent is intervention needed? For example number of wards with overheating risk reduced, number of home care visits still completed, Business Continuity Plans enacted and lessons learnt.
- Did these objectives remain relevant and appropriate?
- How can the principles of good adaptation be reflected in your evaluation criteria?

### Measuring performance against objectives

Comparing outputs and outcomes of your project against the original purposes and objectives is one of the simplest ways of evaluating performance. This might include evaluating changes in behaviour and practice which support your adaptation objectives (building adaptive capacity).

### Suggested workshop/activity

This activity could be delivered either via a working group within your organisation, to review the specific interventions and the metrics applied, or as a technical commission to a specialist organisation (for example environmental engineering) supporting a specific feasibility study or delivery of an adaptive measure.

Questions and points for consideration:

- Do the metrics and indicators help you to understand whether the objectives have been met?
- Are your chosen indicators fit for purpose? Would they be more robust if worked into a package of indicators?
- How might changes in availability of data over the study period affect what can be measured, and when? This may affect which metrics you choose.
- The choice of indicators these may reflect a particular framing of climate change, as a risk to assets and health outcomes or as an opportunity to improve health outcomes (refer to the Risk and Opportunities Tool). Consider and challenge your own framing so it provides you with as full a picture as possible, as well as meeting your organisational needs.
- Quantitative metrics should be balanced with qualitative data which examines the facts behind the figures.



---

**CCRA DOCUMENTS**

UK Climate Change Risk Assessment (CCRA3):  
Technical report



Advice to Government Report for the Climate Change Risk  
Assessment (CCRA3)



CCRA3 Summary for Wales



---

**USEFUL SOURCES**

Environment Agency Climate Change Allowances – for  
guidance on when and how local planning authorities,  
developers and their agents should use climate change  
allowances in flood risk assessments. Following these  
allowances for climate change will help minimise  
vulnerability and provide resilience to flooding and  
coastal change Flood risk assessments: climate change  
allowances – GOV.UK [www.gov.uk](http://www.gov.uk)



## CONTENTS

### ADAPTATION TOOLKIT

#### INTRODUCTION

#### 1 GETTING STARTED

#### 2 CURRENT CLIMATE VULNERABILITY

#### 3 FUTURE CLIMATE VULNERABILITY

#### 4 ADAPTATION OPTIONS

#### 5 MONITORING & EVALUATION

### RESOURCES

#### GLOSSARY

#### GET IN TOUCH


## 56

### LOCAL PARTNERSHIPS


#### CLIMATE ADAPTATION TOOLKIT

#### GUIDANCE FOR BUILDING CLIMATE RESILIENT HEALTH AND SOCIAL CARE IN WALES


---

The Climate Crisis – A guide for Local authorities on Planning for Climate Change 


---

Coastal erosion management already taking place in your area – tool produced by the Environment Agency 


---

Living With Environmental Change (LWEC) Policy and Practice Notes – accessible key findings from LWEC-funded research; tailored to specific audiences 

---

Met Office/BBC, What will climate change look like near me? – tool providing assessment of future climate change in terms of temperature and precipitation changes for any UK postcode 

---


The Orange Book: Management of Risk – Principles and Concepts 

---


Joseph Rowntree Foundation, Climate Just 

---

### UKCP18

Met Office: State of the UK Climate 2022 report 

---

UKCP18 Projections for Climate Change over Land – overview 

---

UKCP18 Marine report 

---

UKCP18 Headline findings 

---

UKCP18 Factsheet: UKCP Local (2.2 km) Projections 

---

Public Health England/Wales Heatwave plan 

---

---

Adverse Weather and Health Plan 

---

Building Regulations 2010 

---

The Flood Risk Regulations 2009 


---


Local Government Association 

---


Met Office Weather Advice:

· Stay Safe in a Storm 

· Travelling in storms, rain and strong wind 

· What to do in a flood 

· Protecting your property from flooding 

· Driving in severe weather 

· Advice for travelling in a fog 


---

For specific information on how adaptation can be integrated into the planning, design and development of new and existing communities, see:


– Climate change adaptation by design from the Town & Country Planning Association and 

– The Three Regions Checklist for development 

---

The types of adaptation strategy table can be used to stimulate thinking on the range of possible adaptation strategies 

---

UK Climate Change Risk Assessment 2022 – GOV.UK (www.gov.uk) sets out the six priority risk areas requiring further action in the UK for the period 2017 to 2022 


---




---

Natural Resources Wales – Flood Risk Assessment Map 


---

Natural Resources Wales – Flood risk management annual report 2022 to 2023 


---

Natural Resources Wales – Flood risk management plan 2023 to 2029 

---

Natural Resources Wales – Flood risk management projects 


---

Natural Resources Wales – National Coastal Erosion Risk Management map 


---

Welsh Parliament – Climate Adaptation – Research Briefing (November 2021) 

---

Welsh Government – The Climate Change (Wales) Regulations 2021: integrated impact assessment 


---

Climate Change Committee (CCC) – Progress Report: Reducing emissions in Wales (June 2023) 


---

Climate Change Committee (CCC) – Adapting to climate change – Progress in Wales (September 2023) 

---

Natural Resources Wales – Flood Map for Planning/ Development Advice Map 

---

Natural Resources Wales – Sign up to receive flood warnings 

---

---

## **RESOURCES FROM ADAPTATION TOOLKIT**


---

UK Climate Risk Independent Assessment (CCRA3) 

---

## **RESOURCES FROM INTRODUCTION**

---

Welsh Government has committed to the public sector being collectively net zero by 2030 

---

Prosperity for All: A Climate Conscious Wales 

---

The Wellbeing of Future Generations (Wales) Act 2015 


---

The Chief Medical Officer for Wales 

---

Adapting to Climate Change – Progress in Wales 

---

Health Impact Assessment (HIA) of climate change in Wales 


---

## **RESOURCES FROM STEP 1**


---

Costs of Adaptation, and the Economic Costs and Benefits of Adaptation in the UK 

---

UK National Risk Register (2023) 

---


Welsh Government has committed to responding to the risks and recommendations set out by the CCC 

---

---

**RESOURCES FROM STEP 2**

---

Climate Change Committee's 2021 Independent Assessment of UK Climate Risks 

---

Stakeholder mapping 


---

**RESOURCES FROM STEP 3**

---

Met Office web pages for the user interface for UKCP18 

---

Public Health Wales Health Impact Assessment 

---

Local Climate Adaptation Tool (LCAT) 

---

Climate Just 

---

Adapting to Climate Change: Progress Report for Wales 

---

**RESOURCES FROM STEP 4**

---


Independent Assessment of UK Climate Risk 

---


2°C and 4°C worlds in the UK 

---

---

Monetary Valuation of Risks and Opportunities 

---

Supplementary Green Book Guidance – Accounting for the effects of climate change 


---

Building Regulations 2010 

---

Flood and Water Management Act 2010 

---

Planning for a Resilient Healthcare Estate: Welsh Health Building Note 

---

Stakeholder map 

---

Sustainability West Midlands 

---

**RESOURCES FROM STEP 5**

---

Adaptation Monitoring Framework 

---

**FOR A WIDER LIST OF RESOURCES, PLEASE VISIT**

---

Climate adaptation – Local Partnerships 

---




---

**Adaptation**  
(in climate change context)

Otherwise known as resilience or preparedness. Resilience is the ambition, adaptation is the method.

**Planned adaptation** is the result of a deliberate policy, or evidence, decision, based on an awareness that conditions have changed or are about to change, and that action is required to maintain, or achieve, a desired state.

**Reactive adaptation** is adaptation that takes place in response to the consequences of a particular climate event.

**Anticipatory/future adaptation** is that which takes place before impacts of climate change are observed.

**Spontaneous (or autonomous) adaptation** does not constitute a conscious response to climatic stimuli, but is triggered by ecological changes in natural systems, and by market or welfare changes in human systems.

---

|  |  |
|--|--|
| <b>Adaptive capacity</b>                   | Inherent capacity of a system or population to adjust to climate impacts or climate change, to moderate potential damages, exploit opportunities, and cope with the consequences.  |
| <b>Building adaptive capacity (BAC)</b>    | BAC involves developing the institutional capacity to respond effectively to climate change. This means compiling the requisite information and creating the regulatory, institutional and managerial conditions that are needed for adaptation actions to be undertaken.  |
| <b>Climate</b>                             | Climate is typically defined as the average weather (or more rigorously a statistical description of the average in terms of the mean and variability) over a period of time, usually 30 years. These quantities are most often surface variables such as temperature, precipitation, and wind. Climate in a wider sense is the state, including a statistical description, of the climate system. |
| <b>Climate Change Act 2008</b>             | The Climate Change Act is the basis for the UK's approach to tackling and responding to climate change. <b><u>Climate Change Act 2008</u></b> .  |
| <b>Climate change risk</b>                 | Additional risk to investments (such as buildings and infrastructure) and actions from potential climate change impacts.   |
| <b>Climate change impact</b>               | A specific change in a system caused by its exposure to climate change. Impacts may be harmful (threat) or beneficial (opportunity).   |
| <b>Contingency planning</b>                | A plan devised for a specific situation when things could go wrong. Contingency plans are often devised by those who want to be prepared for any eventuality.  |
| <b>Delivering adaptation actions (DAA)</b> | DAA involves taking practical actions to either reduce vulnerability to climate risks, or to exploit positive opportunities.   |
| <b>Exposure</b>                            | Exposure indicates the presence of assets, services, resources and infrastructure that could be adversely affected.  |
| <b>Hazard</b>                              | Hazard refers to the potential occurrence of climate-related physical events or trends that may cause damage and loss.   |
| <b>Maladaptation</b>                       | Action or investment that enhances vulnerability to climate change impacts rather than reducing them.  |

|  |   |
|--|---|
| <b>Mitigation</b>                          | Reducing greenhouse gas emissions in order to slow or stop global climate change. For further information, see DECC Mitigation page.  |
| <b>National Adaptation Programme (NAP)</b> | The Climate Change Act requires a national adaptation programme to be laid in Parliament and published every five years. The second NAP was published in 2018.<br><b><u>Third National Adaptation Programme (NAP3)</u></b>  |
| <b>Resilience</b>                          | The ability of a social or natural system to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity of self-organisation and the capacity to adapt to stress and change.  |
| <b>Return period</b>                       | The average time between events of a given magnitude. A 100-year return period is the equivalent of the event that has a one per cent probability of occurring in any given year.   |
| <b>Risk averse</b>                         | Unwilling to take risks, or wishing to take as few risks as possible.   |
| <b>Risk aware</b>                          | Understanding the potential losses or damage from an action.  |
| <b>UK Climate Change Risk Assessment</b>   | The Climate Change Act commits the UK Government to carry out an assessment of the risks to the UK of climate change every five years. The last UK Climate Change Risk Assessment (CCRA3) was published in 2022. <b><u>UK Climate Change Risk Assessment 2022.</u></b> The first cycle reported to Parliament in January 2012.  |
| <b>Uncertainty</b>                         | Uncertainty refers to a state of having limited knowledge. Uncertainty can result from lack of information or from disagreement over what is known or even knowable. Uncertainty may arise from many sources, such as quantifiable errors in data, or uncertain projections of human behaviour. Uncertainty can be represented by quantitative measures or by qualitative statements. |
| <b>Vulnerability</b>                       | Vulnerability is the degree to which a system is susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate change and variation to which a system is exposed, its sensitivity, and its adaptive capacity.                                  |
| <b>Weather</b>                             | Weather refers to the state of the atmosphere with regard to temperature, cloudiness, rainfall, wind, and other meteorological conditions.  |

**GET IN TOUCH***Disclaimer*

This report has been produced and published in good faith by Local Partnerships and Local Partnerships shall not incur any liability for any action or omission arising out of any reliance being placed on the report (including any information it contains) by any organisation or other person. Any organisation or other person in receipt of this report should take their own legal, financial and/or other relevant professional advice when considering what action (if any) to take in respect of any associated initiative, proposal or other arrangement, or before placing any reliance on the report (including any information it contains).



## Copyright

© Local Partnerships LLP 2024



JOINTLY OWNED BY



✕ @LP\_localgov |  local-partnerships-llp |  localpartnerships.gov.uk

**Local Partnerships** 18 Smith Square, London SW1P 3HZ

020 4526 8474 | [LPenquiries@localpartnerships.gov.uk](mailto:LPenquiries@localpartnerships.gov.uk)