HISTORIC ENVIRONMENT SCOTLAND | ÀRAINNEACHD EACHDRAIDHEIL ALBA

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CLIMATE CHANGE **ADAPTATION MANUAL**

FOR HERITAGE TOURISM

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DISCLAIMER

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PURPOSE AND SCOPE

The purpose of this climate change adaptation manual is to provide guidance on how to safeguard Scotland's heritage tourism sector from adverse impacts of climate change. As climate change brings about more frequent and severe weather events, rising sea levels, and temperature fluctuations, heritage tourism faces significant risks. This manual aims to help heritage site managers, tourism operators, and other related tourism businesses and organisations to understand these risks and implement effective strategies to protect the sector. By doing so, it ensures that the cultural heritage remains resilient to climate change impacts and continues to attract visitors, thereby supporting the local economy and cultural continuity.

The manual serves as a resource for integrating climate resilience into the daily operations and long-term planning of the heritage tourism sector. It includes practical information on steps to be taken to become more resilient to climate change. The goal is to create a proactive approach to managing climate risks, encouraging collaboration among stakeholders, and fostering innovation. Ultimately, the manual not only aims to protect and build resilience for heritage tourism, but also to enhance its adaptive capacity, ensuring that Scotland's rich history can be appreciated by future generations.

This manual directly contributes to the delivery of the Scottish National Adaptation Plan (SNAP3), which sets out the imperative of adaptation to support all of Scotland's priorities and deliver multiple co-benefits beyond climate resilience. It contributes to both objective B1 to increase business understanding of climate risks and adaptation action and objective C5 which sets out the transformational power of culture, heritage and creativity to support Scotland's adaptation journey.

CONTENTS

HOW TO USE THIS MANUAL

Guide at Edinburgh Castle

1. HOW TO USE THIS MANUAL

This document is designed to be flexible, practical, and relevant, wherever you are on your climate adaptation journey. Rather than reading from cover to cover, we encourage you to focus on the sections that are most relevant to your context, priorities and stage of progress.

Adaptation is not a one-size-fits-all, so the suggestions and examples should be contextualised to your own situation. Use this manual as a guide to help you think through your needs and options to further your journey into adaptation.

1.1 Where to start

If you are at the beginning of your adaptation journey start with Chapter 2 and 3 and then move to Chapter 4. This will give you a strong starting point, explaining what adaptation is, why it is important and the climate change trends that will require adaptation.

If you have already begun adaptation planning or action, read Chapter 2 and 3 and then continue onto Chapters 5, 6 and 7. These chapters offer a deep insight to the consequences of climate change and possible adaptation measures that you could be implementing. These chapters focus on five key areas of your organisation that will be impacted and should be adapted: People, Products and Services, Premises, Processes, and Place.

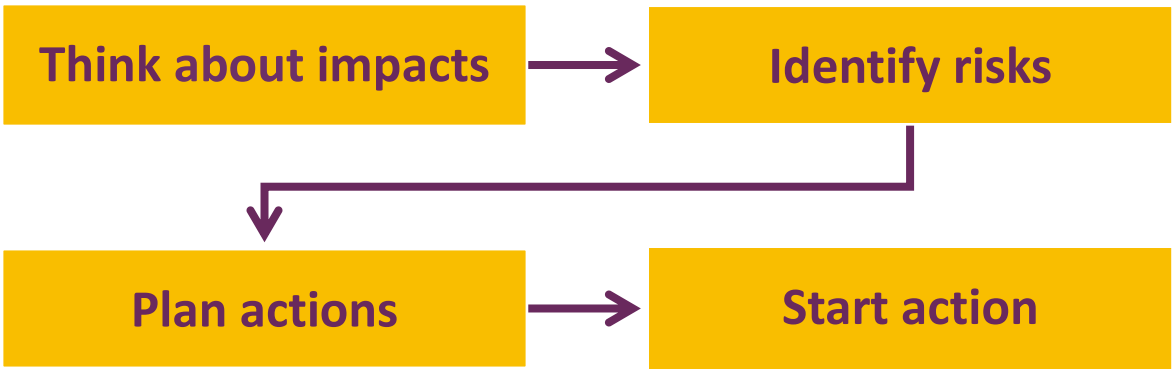
1.2 Icons to look out for

There are two key icons to help you through the adaptation process:

Key Insights

Top Tips

We have simplified the adaptation journey into four key stages, summarised by the acronym TIPS: Think about impacts, identify risks, Plan action, and Start action. Throughout the manual, these stages are highlighted in yellow to show which part of the journey each section supports.



1.3 Checklist for climate change adaptation action

As you work through this manual and progress on your adaptation journey, you can use the checklist below to make sure you have covered the main areas. You might need to come back to some of them later, but the checklist will help you feel confident that you are heading in the right direction and show you what to do next.

Understand the climate change relevant to you (Chapters 4 and 5)

- ☐ Review climate change trends relevant to your region and sector.
- ☐ Identify which aspects of your business are most vulnerable.
- ☐ Identify which aspects of your business are most vulnerable.

Complete a risk assessment (Chapter 6)

- ☐ Evaluate the likelihood of the climate change event.
- ☐ Evaluate the severity of the impact of the climate change event.
- ☐ Use or adapt the risk matrix to prioritise which risks require action.

Prioritise adaptation actions (Chapter 7)

- ☐ Consider low-cost, high-impact options alongside long-term investments.
- ☐ Identify adaptations that build resilience across people, products and services, premises, processes, and place.

Implement adaptations (Chapter 7)

- ☐ Allocate resources and responsibilities within your team.
- ☐ Communicate clearly with staff and visitors about the adaptations you are making.

Monitor, review, and adjust (Chapter 7)

- ☐ Review the effectiveness of adaptations over time.
- ☐ Update your risk assessments, policies, and plans regularly.

1.4 Tell us what you think

This manual is a working, evolving document, and your input to make it better is welcome. If you have any suggestions, feedback or examples of good practice that you would like to share, please get in touch.

Email us at: ClimateChange@hes.scot

Or fill out this feedback form: Climate Change Adaptation Manual For Heritage Tourism

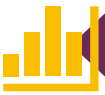
Your feedback is vital to ensure the manual is useful, relevant and reflective of the realities faced by organisations adapting to climate change.

2 KEY TERMS

Mull of Galloway Lighthouse, Drummore

2. KEY TERMS

Weather
The short-term conditions of the atmosphere, such as temperature, rainfall and wind, in a specific place at a specific time.



Climate
The long-term average of weather patterns in a particular region, typically measured over 30 years or more.

Climate Change
As a result of greenhouse gas emissions and other human activities, global temperatures are rising causing increasingly rapid changes in climatic systems such as rainfall patters, sea levels rising and weather extremes.

Climate Change Trend
A long-term pattern or shift in climate conditions, such as rising temperatures or changing rainfall, observed over decades.

Climate Risk
The potential for adverse consequences for human or ecological systems resulting from dynamic interactions between climate-related 'hazards' with the 'exposure' and 'vulnerability' of the affected system.

Climate Change Hazards
The potential occurrence of a climate related event that may threaten people, environment or infrastructure, such as rising temperatures, sea level rise etc.

Climate Related Event
A specific occurrence of a climate change hazard such as a heatwave, flood, or drought. These are intensified by long-term changes in climate.

Vulnerability
The degree to which people, businesses and places are likely to be impacted by climate risks due to their sensitivity and limited ability to cope with the impacts.

Climate Change Impact
The potential consequence of a climate change event such as flooding or drought.

Climate Change Adaptation
The process of adjusting to current or expected climate risks to reduce the impacts and build resilience. This does not include reducing greenhouse gas emissions and mitigation.

Climate Resilience
The ability to anticipate, respond and recover from climate-related impacts while maintaining essential operations and adapting to future risks.

3 DEFINING A HERITAGE TOURISM BUSINESS

Castle of Light event at Edinburgh Castle

3. DEFINING A HERITAGE TOURISM BUSINESS

Tourism contributes £6 Billion of GDP to the Scottish economy, which is 5% of Scotland's total GDP. Heritage is one of the leading reasons for visiting Scotland, making it a keystone within the Scottish tourism sector. Therefore, the focus of this manual is to support heritage tourism businesses adapt to become resilient to the changing climate.

3.1 Our definition of a Heritage Tourism Business

A Heritage Tourism Business is any organisation, attraction, or site that generates income from visitors interested in experiencing or who experience heritage. This can include tangible heritage, from historical sites to archaeological landmarks, or intangible heritage, such as music, art and cultural traditions. The business must be able to accommodate visitors, whether it be domestic, short haul or long-haul international travellers, who are partaking in a planned itinerary or spontaneous trip.

3.2 Examples of Heritage Tourism Businesses

Guided Tour Operators, providing heritage-focused tours or experiences, such as a walking tour through Edinburgh's Old Town.

Historic attractions that offer free or paid visitor entry, such as castles, stately homes, or ancient monuments.

Living Heritage experiences showcasing traditional skills, crafts, food and drink, like whisky distillers, the woollen industry, or traditional restaurants.

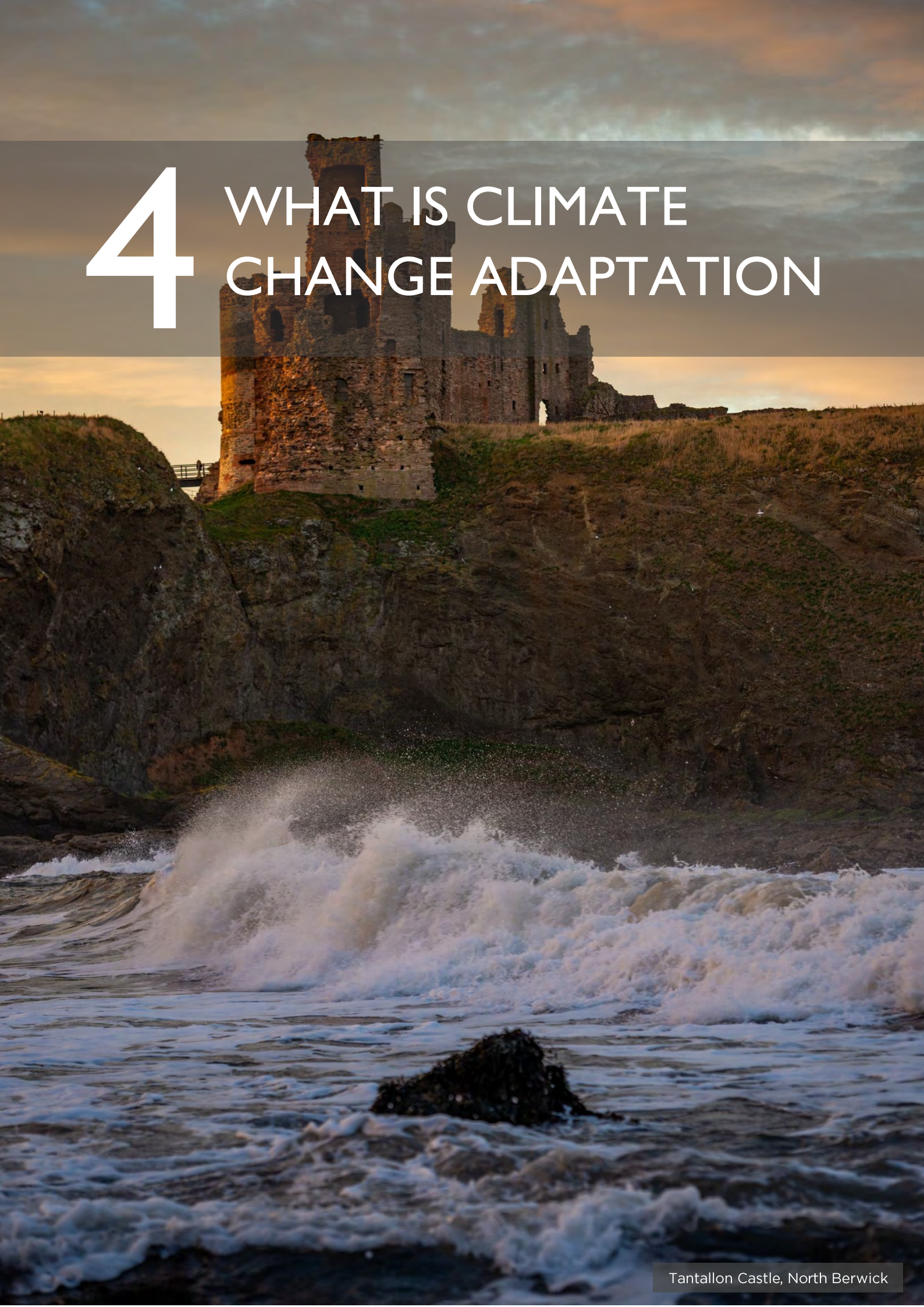
Museums featuring exhibitions and collections related to heritage, with free or paid entry.

Natural heritage landscapes shaped by the interaction of nature and culture, valued for biodiversity, beauty and heritage, and often protected or enjoyed through tourism and recreation.

Heritage events, such as festivals, re-enactments, sporting or cultural celebrations, including jousting events, Highland Games, or a ceilidh.

Jousting event at Jedburgh

4 WHAT IS CLIMATE CHANGE ADAPTATION

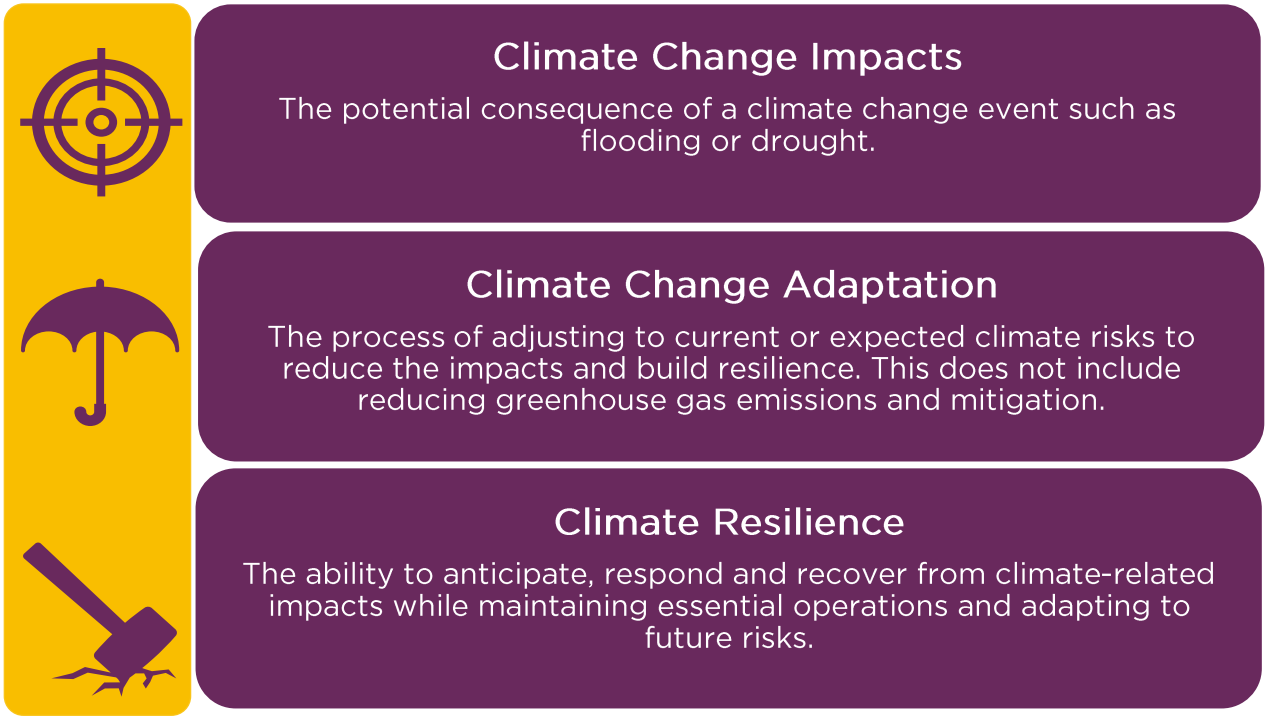


Tantallon Castle, North Berwick

4. WHAT IS CLIMATE CHANGE ADAPTATION

Adaptation Scotland refers to adaptation as:

"The process of ongoing adjustments in response to observed and projected climate change impacts. This includes being prepared for increasing risks posed by climate change hazards, and identifying new opportunities our changing climate may bring, while considering how impacts may be felt differently across society" (Adaptation Scotland; What is Adaptation).



4.1 Reasons for the heritage tourism sector to adapt

Adapting to climate change will help to ensure the long-term viability of Scotland's tourism sector. It will strengthen the safety and accessibility of heritage sites and businesses while improving the overall visitor experience in the face of climate change. Adapting to climate change should form part of the wider work to improve the sustainability of the historic environment and tourism sector, whilst supporting the implementation of responsible tourism. Some key guidance for the bigger picture at the sectoral, national and international levels include the Responsible Tourism Framework: Transforming heritage tourism, Scotland Outlook 2030: Responsible tourism for a Sustainable future, and The United Nations Sustainable Development Goals.

Warming Stripes – a visual representation of the change in Scottish temperatures as measured over the past 140+ years. Each stripe represents one year starting in the late 19th century (top) up until 2024 (bottom). The 'warmer' the stripe the higher the average recorded temperature that year. https://showyourstripes.info/

4.2 Long-term climate change trends for Scotland

Since the 1850s, greenhouse gas (GHG) emissions have increased due to human activities which have caused global temperatures to rise 1.1°C above pre-industrial levels between 2011 and 2020. GHG emissions continue to rise, and the impacts of climate change are being felt across the world.

The Met Office Hadley Centre developed the UK Climate Projections (UKCP) which show how Scotland's climate may change under various emissions scenarios. The UKCP Science Overview Report includes an overview of the projections. You can use this resource to assess what the future impacts of climate change are in your local area.

If you wish to use the UKCP in more detail, you can create a free account on the UK Climate Projections User Interface. The Met Office provides a wide range of support and guidance on how to use the UKCP.

Adaptation Scotland uses projections to highlight that the impacts of climate change in Scotland are expected to continue and intensify. They have identified seven key climate trends for Scotland outlined below. These trends will intensify under different emissions scenarios. Adapting to these trends is essential to building long-term resilience in the sector.

Average temperatures will increase across all seasons

Typical summers will be warmer and drier

Typical winters will be milder and wetter

Intense, heavy rainfall events will increase in both winter and summer

Sea levels will rise

Reduced frost and snowfall

Weather will remain variable and may become more variable

5 IMPACTS OF CLIMATE CHANGE ON HERITAGE TOURISM

Stirling Castle in the winter

5. IMPACTS OF CLIMATE CHANGE ON HERITAGE TOURISM

This section outlines the key impacts of climate change and highlights examples of how these could impact your heritage tourism business. As you review these, consider how they relate to you. Historic Environment Scotland's *A Guide to Climate Change Impacts on Scotland's historic environment* provides more information about how climate change impacts different types of heritage sites.

5.1 How climate change will affect your Heritage Tourism Business

Heritage tourism businesses operate in different places. Whether you manage a rural walking tour, an urban museum, a cultural festival, or a historic property, the ways that you are affected, and the ways that you adapt, will differ. For regional climate predictions, use the Met Office's Local Authority Climate Explorer to find the projections for your area.

To help with this, we have structured this manual using Adaptation Scotland's Small and Medium-sized Enterprise (SME) Climate Resilience Checklist. This framework helps you think through how climate change might affect different parts of your business. The five areas covered are:

Table 5.1. Definitions of Key Business Areas

Key Business Area	Definition
People	Your colleagues, volunteers, visitors and wider community. Considerations include health and safety, wellbeing, capacity, and accessibility.
Products and Services	Your visitor services, such as tours, exhibits, collections, events, food, retail, etc. Reflect on how your supply chain or delivery of the visitor experience may be disrupted.
Premises	The physical premises that you occupy or use, including outdoor spaces and non-renewable resources such as water, electricity etc. Key factors to think about are exposure to extreme weather, damp, or long-term environmental changes.
Processes	Systems, technologies, and routines that keep your business running, from ticketing to communication. Review what policies and regulations you have in place and if there are any procedures that must be followed in case of emergencies.
Place	The wider setting in which you operate, including the landscape, local infrastructure, geographical area, neighbouring businesses, the local community and sense of place. Consider how you can use and support this wider network to generate co-benefits.

Think about impacts

5.1.1 Climate Change Trend: Average temperatures will increase across all seasons

Average temperatures will increase across all seasons. This warming trend brings with it a range of associated climate related events, including more frequent, intense, and prolonged heatwaves, especially in summer months. Even traditionally cooler seasons like spring and autumn are likely to see unseasonably warm temperatures, resulting in early onset of seasonal changes, such as earlier springs and extended periods of warmer weather. Temperature increases will also impact sea temperature which will influence local weather ecological conditions. The warmer temperatures will cause increased stress on infrastructure, built heritage, visitor and staff comfort.

Table 5.2. Consequences of average temperatures increasing across all seasons

Key Business Area	Consequence of climate trend on key business area
People	Due to higher temperatures, greater heat stress and the heightened likelihood of heat related illness or respiratory conditions, visitors and staff will experience greater health and safety risks. This may impact your business liability and insurance.
	Increase in staff sick days, due to heat related events, affecting staff wellbeing and their ability to provide excellent service.
	Accessibility to sites, attractions or visitor experiences may be disrupted by prolonged heat events that have caused significant year-round damage to infrastructure, such as railway lines buckling, engines overheating/ unable to perform as required, and roads rapidly eroding. Equally, visitors may find the experience too expensive due to rising costs resulting from the businesses greater needs for maintenance and repair.

Table 5.3. Consequences of average temperatures increasing across all seasons

Key Business Area	Consequence of climate trend on key business area
Products and Services	Disruptions to local, national and international supply chains may affect business operations and cause an increase to normal expenditure. This may be compounded by an increase in visitors across the year due to higher average temperatures, resulting in greater demand for supplies.
	Rising business costs may be reflected in the price of the offer provided. This in turn could alter the visitor perception of the quality of services.
	Due to an increase in heat related stress or health issues associated to your local geographical location, visitors may incur a greater cost of travel insurance. This may possibly affect your revenue due to reduced popularity or visitor spending.

Table 5.4. Consequences of average temperatures increasing across all seasons

Key Business Area	Consequence of climate trend on key business area
Premises	Possibility of heightened demand on resources such as water, food and energy, due to an increasing need for heating, ventilation and air condition provision throughout the year, which may incur greater business expenses.
	Lack of shaded areas maintained cool rooms or appropriate climate control could result in accelerated decay of artefacts and building fabric. This may also impact the visitor experience due to a lack of shelter from prolonged heat, all year round.
	A change in traditional seasons and prolonged heat events may have an impact on local biodiversity and ecosystems, resulting in a less satisfying visitor experience.

Table 5.5. Consequences of average temperatures increasing across all seasons

Key Business Area	Consequence of climate trend on key business area
Processes	The likelihood of rising temperatures across the year and the consequent changing climate within your local area may make it challenging to attain the correct or full coverage insurance.
	Increasing business running costs, such as heightened insurance, increased wear and tear, and the necessary maintenance of heating, ventilation and air conditioning systems.
	Due to higher temperatures across all seasons, the business may be able to stay open for longer. Staff requirements may change due to an extended peak season increasing pressures on staff. This could also impact staff rotas as individuals will have different medical needs or requirements due to increased year-round demand and pressure.

Table 5.6. Consequences of average temperatures increasing across all seasons

Key Business Area	Consequence of climate trend on key business area
Place	Due to a change in traditional seasons, and rising temperatures across the year, the pull factor for the destination may change, possibly resulting in a change in a shift in visitor numbers. For example, the peak season may be extended, however, extreme heat may see a reduction in visitors.
	The extended peak season may place additional stress on the local community, possibly leading to tensions that could affect the overall visitor experience as a result of increased challenges associated with supporting the tourism business.
	Higher average temperatures across the year may cause greater stress on road and path networks, and demand on local water supply. This will be compounded in places that receive greater visitor demand (such as coastal areas) due to the warmer climate.

5.1.2 Climate Change Trend: Typical summers will be warmer and drier

Typical summers are projected to become warmer and drier, making a significant shift from historically cooler and wetter seasonal norms. This trend will heighten the risk of drought that can lead to soil degradation and stress on natural and built heritage landscapes. Drought can increase the likelihood of wildfires, particularly in moorland and forest areas as drier vegetation becomes more flammable. Reduced river flows and lower water levels in lochs and reservoirs could also become more prevalent. The drier spells may also compromise the structural integrity of historic buildings, especially those constructed on 'wetter' ground resulting in substrate subsistence.

Table 5.7. Consequences of typical summers becoming warmer and drier

Key Business Area	Consequence of climate trend on key business area
People	Likely an increase in risk of dehydration, heat-related illnesses, pests like ticks, and wildfires threaten safety for staff and visitors.
	Warmer weather can worsen risks for those with respiratory conditions like asthma amid dusty, dry conditions and causes general discomfort.
	Increasing likelihood of necessary access restrictions to sites for both staff and visitors, particularly if there is a high risk of wildfire.

Table 5.8. Consequences of typical summers becoming warmer and drier

Key Business Area	Consequence of climate trend on key business area
Products and Services	Droughts could put pressure on water resources and impact local food supplies.
	Certain activities may need to be cancelled, such as steam trains, costumed-guided tours, or outdoor crafts involving fire. Wildfires may damage or destroy heritage sites, impacting business operations and services. Business travel may also be impacted, with staff potentially unable to travel to work due to heat.
	Possible decline in visitor satisfaction due to the impacts of extreme heat as services are cancelled. The use of barbeques and outdoor fires may need to be restricted or banned.

Think about impacts

Table 5.9. Consequences of typical summers becoming warmer and drier

Key Business Area	Consequence of climate trend on key business area
Premises	Probable increase in operational costs as cooling systems, like air conditioning, are in greater demand.
	Poor infrastructure risks overcrowding in shaded areas, leading to panic and medical emergencies.
	Possible rise in wildfires threatens landscapes and biodiversity. Maintenance costs for greenspaces may rise. The likelihood of algal blooms developing in water sources can be toxic to animals and humans.

Table 5.10. Consequences of typical summers becoming warmer and drier

Key Business Area	Consequence of climate trend on key business area
Processes	A potential influx of visitors may require additional regulations on how they interact with the offerings provided by the business during periods of drought.
	A possible decrease in water security and rising energy costs may lead to a disruption in.
	Regular routines and operations may get disrupted due to high visitor numbers that exceed capacity, consequently diminishing the visitor experience.

Table 5.11. Consequences of typical summers becoming warmer and drier

Key Business Area	Consequence of climate trend on key business area
Place	Increased risk and severity of wildfires impacting the visitor pull factor, safety of the destination and potentially changing the sense of place. Urban areas may experience more intense heatwaves.
	Local communities may become frustrated by the sudden surge in visitors and lack of infrastructure, leading to resident complaints.
	Influx of visitors during warmer weather can result in greater pressure on local infrastructure, such as roads, causing congestion, and water resources, heightening water scarcity.

5.1.3 Climate change trend: Typical winters will be milder and wetter

Winters are expected to become milder and significantly wetter, with increased rainfall leading to a rise in climate related events such as flooding, waterlogging, and soil erosion. Prolonged wet conditions can strain drainage systems, damage historic landscapes, and accelerate the decay of vulnerable heritage structures. Additionally, warmer, wetter winters create more favourable breeding conditions for pests such as midges and ticks, which may emerge earlier and persist longer. Warming conditions could allow other pests, like mosquitoes, to expand their range northward, potentially introducing new health risks and ecological imbalances.

Table 5.12. Consequences of typical winters becoming milder and wetter

Key Business Area	Consequence of climate trend on key business area
People	Warmer, wetter weather in winter will likely increase the season for pests such as midges or ticks and create better environments for mosquitoes to thrive resulting in an increase of health-related issues such as Lyme disease or malaria that may deter visitors.
	Milder winters may lead to fewer cases of cold-related illnesses and respiratory conditions, thus reducing the staff's absences rate. There may also be an increase in employment opportunities and staff requirements due to the extended season.
	Milder winters mean fewer icy pavements and roads, which can improve mobility for older adults, wheelchair users, and people with visual impairments, enabling them to access heritage sites and activities. Equally wetter conditions could prove hazardous in some environments.

Table 5.13. Consequences of typical winters becoming milder and wetter

Key Business Area	Consequence of climate trend on key business area
Products and Services	Warmer winters may reduce snow-related delays but increase disruption from waterlogged roads and landslides, especially in rural or coastal areas. Public transport and courier services may be rerouted or suspended, affecting delivery of goods. Humidity and dampness can damage merchandise, especially books, textiles, and artisanal goods.
	Reduced snow causes the loss of iconic winter landscapes, reducing aesthetic appeal for visitors. Increased rainfall and storm events can lead to more frequent temporary closures of heritage sites due to flooding, unsafe conditions, or damage to infrastructure. Outdoor activities, such as guided tours, reenactments, and seasonal events may need to be scaled back or cancelled due to persistent wet conditions, affecting visitor numbers and revenue.
	Waterlogged grounds and muddy paths can reduce accessibility for visitors with mobility needs, impacting inclusivity. With fewer outdoor options, indoor spaces may become more crowded, affecting the quality of the visitor experience.

Table 5.14. Consequences of typical winters becoming milder and wetter

Key Business Area	Consequence of climate trend on key business area
Premises	Warmer winters still require heating, but the added humidity means more energy is needed for dehumidifiers and ventilation systems to protect collections and interiors.
	Accelerated erosion and moisture ingress caused by rain can lead to stone decay and timber rot, thus resulting in greater conservation demands. Pressure on water drainage results in weakening of pipes and increased risk of stone decay and fall.
	If a destination becomes warmer in the winter there may be an increase in tourism numbers due to seasonal changes leading to accelerated, year-round, erosion on heritage sites.

Table 5.15. Consequences of typical winters becoming milder and wetter

Key Business Area	Consequence of climate trend on key business area
Processes	Policy and regulations may need to be updated to ensure sites and activities have emergency protocols for extreme weather events, including temporary closures, evacuation plans, and protective measures for artefacts.
	Sites may need to upgrade drainage infrastructure and installing flood barriers to manage increased surface water and prevent damage to historic buildings. Outdoors activities may need to increase investment in digital tours and online exhibitions to continue engagement when physical access is limited.
	Persistent dampness will likely lead to more frequent cleaning of floors, walls, artefacts, and surfaces to prevent mould and decay.

Table 5.16. Consequences of typical winters becoming milder and wetter

Key Business Area	Consequence of climate trend on key business area
Place	Pull factors of Scotland may decrease due to more frequent rain in winter, potentially leading to a decrease in visitors.
	Communities that rely on heritage tourism may face income loss when sites are closed or damaged due to weather. Seasonal festivals and community gatherings tied to heritage locations are more likely to be cancelled or moved indoors, weakening social cohesion.
	Roads and footpath near heritage sites are more prone to waterlogging, potholes, and landslides, reducing accessibility for residents, staff, and visitors. Public transport routes may be disrupted by flooding, isolating communities and affecting tourism-dependent economies.

5.1.4 Climate change trend: Reduced frost and snowfall

As frost and snowfall become less frequent and severe, there may be a range of knock-on effects. Milder winters create favourable conditions for the spread of pests, invasive species, and diseases that would previously have been curbed by cold temperatures, frost, and snowfall. These ecological shifts can impact historic gardens, landscapes, and the biodiversity at heritage sites as well as impact staff and visitor safety and the visitor experience. Reduced frost will also alter traditional construction practices and the maintenance of older buildings.

Table 5.17. Consequences of reduced frost and snowfall

Key Business Area	Consequence of climate trend on key business area
People	Probable reduction in cold-related illnesses and PPE use, but longer warm seasons may increase heat-related risks like heatstroke and dehydration, especially for outdoor and vulnerable populations.
	Changing seasons due to shifting climate can cause employees emotional and mental stress, leading to confusion and difficulty coping.
	Accessibility to sites outside peak tourism may improve, as snow and frost disruptions decrease. Disabled access could also become safer and easier during winter conditions.

Table 5.18. Consequences of reduced frost and snowfall

Key Business Area	Consequence of climate trend on key business area
Products and Services	Whilst there will be some opportunities that emerge, such as dark sky experiences, cycling tours, and guided tours, this will negatively impact those businesses relying on snowfall or winter activities. Reduced road disruptions may improve transport but decreased winter preparedness risks supply chain delays for essential materials, food, and resources during severe frost or snow.
	Demand for cold-weather guides and authentic seasonal Scottish experiences may decline. A longer, warmer season could shift visitor demographics and timing, impacting service capacity. Promotional strategies may pivot away from traditional winter offerings.
	Authentic Scottish seasonal experiences and niche offerings may be affected, with unpredictable weather potentially disrupting visitor enjoyment.

Think about impacts

Table 5.19. Consequences of reduced frost and snowfall

Key Business Area	Consequence of climate trend on key business area
Premises	Reduced frost and snowfall will likely diminish water resources and disrupt energy production. Less snowpack may decrease water availability for drinking and hydropower, while earlier snowmelt may cause supply-demand mismatches. Changes in frost patterns also affect soil moisture, with increased risk of wildfires.
	Reduced frost and snowfall may lower winter maintenance costs by decreasing snow removal and ice treatment needs. However, drier conditions may increase pest activity and damage landscaping. Some destinations could become more accessible, boosting visitors but risking erosion and infrastructure damage.
	Reduced need for maintenance of outdoor surfaces and less salt use may benefit site conservation, but increasingly unpredictable, severe weather could catch you unprepared.

Table 5.20. Consequences of reduced frost and snowfall

Key Business Area	Consequence of climate trend on key business area
Processes	Policies should be updated to reflect decreased snowfall and frost, while emphasizing preparedness for unpredictable weather events.
	Increased freeze-thaw cycles could damage roads, cause more potholes and require adapted maintenance during shorter, intensive periods. Artificial snowmaking used to maintain winter aesthetics and activities are energy and water-intensive, which could raise sustainability concerns.
	Unpredictability of frost and snow can lead to disruptions in procedures and routines. Planning around these challenges can help lessen impacts and lower the risk of becoming complacent and unprepared for erratic and severe snow events.

Table 5.21. Consequences of reduced frost and snowfall

Key Business Area	Consequence of climate trend on key business area
Place	Destinations may see increased demand for accessible outdoor heritage tourism in warmer climates as a substitute for snow-based activities.
	Seasonal tourism growth could boost the community economy but may harm it if adaptation to current seasonality is not managed.
	A destination may experience greater demand for outdoor heritage tourism as an alternative to snow-related outdoor activities and as result a longer warmer season, thus increasing pressure on the infrastructure.

5.1.5 Climate change trend: Sea levels will rise

Rising sea levels, driven by rising temperatures and the melting of polar ice caps, are expected to lead to long-term coastal flooding and increased erosion along the UK's coastline. This is already threatening heritage sites and businesses located on Scotland's vast coastline. Regular flooding of these areas may compromise the structural integrity of heritage sites and damage archaeological layers. Increased storm surges and higher tidal levels will exacerbate this risk. Additionally, salinisation of groundwater could affect soil quality and local ecosystems, further impacting historic landscapes and visitor experiences.

Table 5.22. Consequences of Sea levels rising

Key Business Area	Consequence of climate trend on key business area
People	Structural instability due to erosion or repeated flooding can make heritage sites unsafe for visitors and staff. Pressure on drainage systems leading to sewage spills can expose people to waterborne pathogens.
	Uncertainty about the future of heritage assets and livelihoods tied to tourism can increase psychological stress for workers and residents.
	Flooded or unstable sites may be closed or restricted, affecting visitor and staff safety.

Table 5.23. Consequences of Sea levels rising

Key Business Area	Consequence of climate trend on key business area
Products and Services	Utility disruptions (electricity, water, sewage) can halt operations and delay deliveries of essential supplies.
	Site closures or restricted access due to safety concerns or restoration efforts can limit guided tours, educational programs, and cultural events. Reduced interpretive experiences of artifacts or collections are relocated or protected from flood risks.
	Perceived risk from flooding or unstable structures may deter tourists causing revenue loss.

Think about impacts

Table 5.24. Consequences of Sea levels rising

Key Business Area	Consequence of climate trend on key business area
Premises	Likely to be increasing demand for protective resources such as construction materials for flood defences and for energy and water usage for dehumidification in buildings.
	The cost of repair from damage can become higher and more frequent. Coastal businesses may need to re-locate or offer new experiences in areas that are less vulnerable to long term flooding. Additionally, paths, stone dykes and fences may be lost to erosion causing access difficulties and boundary challenges.
	Outdoor events and activities may experience fluctuating visitor numbers due to flooding.

Table 5.25. Consequences of Sea levels rising

Key Business Area	Consequence of climate trend on key business area
Process	Businesses may be required to conduct climate risk assessments and report on adaptation measures as part of licensing or funding applications. Businesses gaining (and/or having the right) insurance becomes more challenging, disrupting business operations.
	Probable increased frequency of power cuts leading to broadband and communication channel cut offs.
	Businesses may adjust opening hours and seasonal operations based on flood risk forecasts. Routine coordination with suppliers will be needed to manage possible delays or disruptions due to weather-related transport issues.

Table 5.26. Consequences of Sea levels rising

Key Business Area	Consequence of climate trend on key business area
Place	Probable damage and loss of heritage sites may reduce the destinations attractiveness, reputation and consequent visitor experience.
	Vulnerable populations, including low-income communities, are disproportionately affected by rising seas.
	Saltwater can infiltrate freshwater aquifers, compromising water supplies for heritage businesses and nearby communities.

5.1.6 Climate change trend: Intense heavy rainfall events will increase in both winter and summer.

As climate change intensifies, heavy rainfall events are expected to become more frequent and severe across both winter and summer months. This increase in rainfall will lead to prolonged periods of wet weather, elevating the risk of flooding in urban and rural heritage sites. Increased frequency of flash floods could overwhelm drainage systems, damage infrastructure, erode historic landscapes, and restrict access to sites. Additionally, waterlogged ground conditions may accelerate the deterioration of historic buildings, especially those on unstable or poorly drained soil. Prolonged wet conditions could also lead to the growth of mould and decay in vulnerable structures, further threatening their conservation.

Table 5.27. Consequences of an increase of intense heavy rainfall in winter and summer

Key Business Area	Consequence of climate trend on key business area
People	Staff and visitors may be exposed to greater health and safety risks from flooding events. These include immediate risk to life, overflowing storm drains and sewage systems causing contamination and an increase of mould due to damp conditions, leading to health and respiratory issues.
	Staff may experience stress due to the challenges faced by flooding events, including inability to travel to work and from work and home. Additionally prolonged exposure to damp and mouldy environments can impact mental health.
	Flooding can cause accessibility disruptions including closed roads, footpaths and railway services. This will indiscriminately impact both visitors and staff affecting those with accessibility needs the most.

Table 5.28. Consequences of an increase of intense heavy rainfall in winter and summer

Key Business Area	Consequence of climate trend on key business area
Products and Services	Heavy rainfall and flooding can cause disruptions to supply chain which may lead to the shortage of essential goods and services upon which your business depends. Disruptions could include road closures or direct damage to the supplier.
	The service that you provide may become unreliable due to increased unpredictable closures. Additionally, damage resultant from heavy rainfall events and flooding could cause a loss of cultural or historical value that draws visitors to your attraction, or experience.
	Increased rainfall can negatively affect the visitor experience on multiple levels, reducing visitor numbers and revenues. For example, intense rainfall and flooding could reduce the pull factor for visitors due to 'unpleasant' weather, may cause disruption to outdoor activities, or result in short notice cancellations.

Table 5.29. Consequences of an increase of intense heavy rainfall in winter and summer

Key Business Area	Consequence of climate trend on key business area
Premises	Built heritage may require greater energy consumption to manage heating and cooling systems as the building fabric may be impacted by water ingress, higher humidity or damage. Staff may also require drying facilities for work clothing, so that they can carry out their duties.
	Consistent rainfall, throughout the year will cause greater damage to heritage buildings as well as new buildings, due to erosion, water ingress, damp and mould, or flooding. This would incur greater and more frequent repair costs.
	The combination of visitor footfall and intense rainfall in both summer and winter, will likely result in greater footpath erosion. Surrounding ecosystems may also be altered potentially changing the appearance and draw of the heritage attraction.

Table 5.30. Consequences of an increase of intense heavy rainfall in winter and summer

Key Business Area	Consequence of climate trend on key business area
Processes	Damage from intense rainfall or flooding may result in unavoidable insurance claims for property damage, business interruption or loss. This will lead to higher insurance premiums. In some cases, insurance coverage may become limited due to the heightened risk of damage or disruption.
	Likely to see an increase in business running costs, from amplified wear and tear to required maintenance of heating, ventilation and air conditioning systems. Water damage may also disrupt energy provision or cause a breakdown of communication channels.
	There could be greater demand for repair, restoration and cleaning following an intense rainfall event. This will disrupt the normal operations for staff and increase strain on both human and natural resources.

Table 5.31. Consequences of an increase of intense heavy rainfall in winter and summer

Key Business Area	Consequence of climate trend on key business area
Place	Due to increased heavy rainfall across all seasons, the pull factor for the destination may change, possibly resulting in a change in visitor numbers. For example, there may be spikes of visitors during warmer dry days for businesses that have outdoor elements, whereas indoor heritage tourism businesses may experience spikes during wet weather days
	Heavy rainfall and localised flooding can heighten the pressure on and stress of the local community, making them vulnerable to the impacts of tourism or other external pressures.
	Intense rainfall events through both winter and summer may increase disruption to transport networks and cause degradation of local infrastructure such as paths, roads or public spaces. There will be greater risks of landslides and water management systems may overflow.

5.1.7 Climate change trend: Weather will remain variable and may become more variable

Climate change is expected to intensify the natural variability of weather, making conditions more unpredictable across all seasons. This may include more frequent and severe storms, sudden temperature swings, and rapid shifts between dry and wet periods. Such variability poses challenges for heritage tourism businesses, as it can disrupt travel plans, outdoor events, and seasonal visitor flows.

Table 5.32. Consequences of weather remaining variable and potentially becoming more variable

Key Business Area	Consequence of climate trend on key business area
People	There may be a greater health and safety risk to both visitors and staff due to storm debris, flooding or electrical breakdown. Staff may experience dangerous conditions on their commute to work due to variable weather and storm events.
	Due to the unpredictability of weather, staff may experience an increase in stress and decline in health and wellbeing. This may result in more staff sick days. Staff may also be concerned about family, friends and their property being damaged by severe storm events, impacting their wellbeing and ability to work.
	Storm damage may disproportionately impact those with accessibility needs. For example, elevators or lifts may be out of service due to storm damage or extreme heat. Those with health conditions may be unable to participate in outdoor activities due to the variable weather conditions that could worsen their condition. Paths and access routes may also be eroded, making access challenging.

Table 5.33. Consequences of weather remaining variable and potentially becoming more variable

Key Business Area	Consequence of climate trend on key business area
Products and Services	Suppliers may be affected by the variable weather, reducing their ability to meet the demands of your business. Delays in deliveries may result in perishable goods spoiling.
	Regular weather disruptions may impact what services can be provided. Certain sites may be inaccessible due to storm damage, while others may not be open due to supply or staffing issues. The service that is provided may be different from what visitors were expecting potentially resulting in poor reviews and a damaged reputation.
	Poor weather can obscure views, limit access to certain areas or damage the ambiance of heritage sites. Consequently, indoor alternatives may be overcrowded or not yet developed leading to a diminished visitor experience. Additionally, visitor centres, ticket booths and rest areas may be damaged resulting in a disrupted visitor experience.

Table 5.34. Consequences of weather remaining variable and potentially becoming more variable

Key Business Area	Consequence of climate trend on key business area
Premises	Storm damage may cause contamination of water sources putting pressure on the resources available. Energy consumption may be more intense due to the constant requirement to adapt to the variable weather. For example, a cold week may be followed by an extremely hot week in summer demanding both heating and cooling systems.
	Extreme conditions and variable weather can cause accelerated degradation or damage to the fabric of heritage sites. This may result in a greater demand for emergency repairs. Freeze thaw, water ingress, and heat stress among others are ways in which the heritage fabric may be damaged.
	The use of outdoor spaces may become increasingly challenging to variable weather and heightened severity of storms. Drainage systems may also become damaged or overloaded resulting in flooding, limiting the functionality of outdoor spaces.

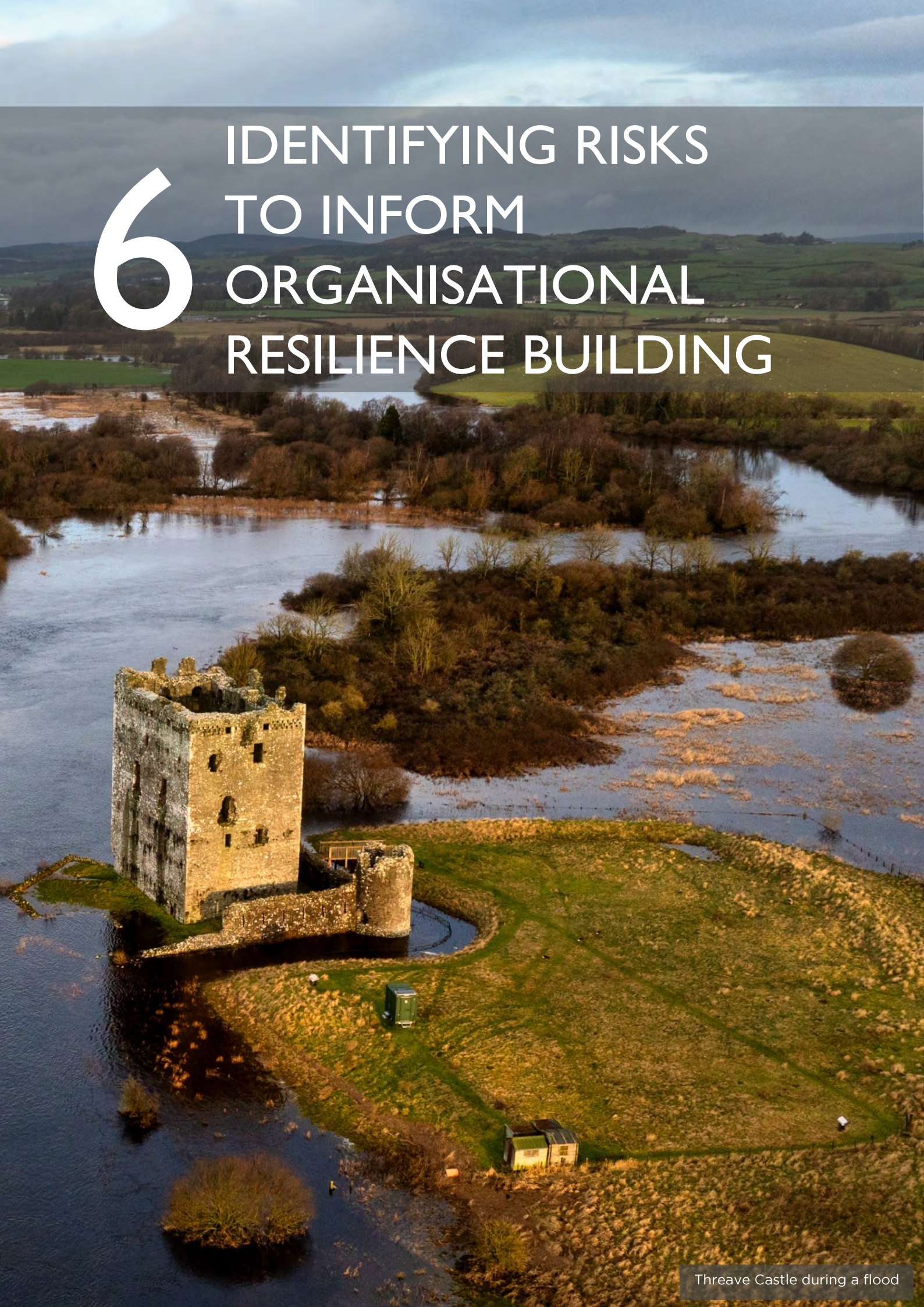
Table 5.35. Consequences of weather remaining variable and potentially becoming more variable

Key Business Area	Consequence of climate trend on key business area
Processes	There may be a heightened demand for cancelation policy to provide visitors with quality assurance. It may also become increasingly difficult to forecast peak visitor season and market, plan and communicate seasonal activities.
	There may be an increase in power cuts that disrupt communication channels, ticketing systems and heating and cooling systems.
	The variability of weather may result in minimal recovery time following storm damage, flooding or other adverse weather events. This could consequently degrade existing procedures for returning to business as usual.

Table 5.36. Consequences of weather remaining variable and potentially becoming more variable

Key Business Area	Consequence of climate trend on key business area
Place	Destinations that experience greater variability in weather may see an impact on the pull factor for the destination. The appearance of local landscapes and biodiversity may also change due to the weather variability, which could lead to a change in visitor perception of the destination.
	Emergency services may be stretched thin as they will be responding to more frequent storm and weather-related emergencies. The community may also experience a degradation of local pride or identity if the cultural significance of the heritage site is damaged by a storm, flood or other variable weather conditions.
	Damage to local infrastructure may impede staff and visitor access to your attraction. The effort for repairing and recovering from such damage may put pressure on resources that support your business or the businesses that support you.

6 IDENTIFYING RISKS TO INFORM ORGANISATIONAL RESILIENCE BUILDING



Threave Castle during a flood

6. IDENTIFYING RISKS TO INFORM ORGANISATIONAL RESILIENCE BUILDING

Now that you have a better understanding of how climate change is impacting your organisation, the next step is to identify the specific risks your business operations may face. Understanding these risks will help you prioritise actions that improve your ability to cope with climate-related challenges and maintain business continuity.

A climate change risk assessment will help you do this. These are like operational risk assessments, as they enable you to evaluate potential threats to your business that are caused by the impacts of climate change.

This chapter explains why identifying climate-related risks is a vital part of adaptation planning and will help to provide practical guidance on how to approach this process within your organisation.

6.1 Why do you need to identify climate change risks?

Carrying out a climate change risk assessment is a crucial first step for tourism businesses aiming to build resilience against the impacts of climate change. These assessments should be iterative, and you should build in time to review and update them regularly, such as every 3-5 years. This will help to ensure the hazards you identify, and their associated risk levels are accurate. A thorough risk assessment identifies the impacts of climate change that pose the greatest risk to your operations (see Chapter 5).

This clarity enables you to prioritise adaptation measures, ensuring resources are directed to actions that protect your business and the heritage assets you manage or rely on. Chapter 7 introduces specific adaptation actions for your heritage tourism business.

Once risks are identified and actions prioritised, you can begin making adaptations to reduce their impact. These measures help address vulnerabilities, minimise disruptions, and lower the risk of costly damages, closures or health and safety issues. This proactive approach supports long-term resilience and can bring wider benefits to your community, environment and heritage. For example, alternative itineraries can ease pressure on sensitive sites, and sourcing locally can strengthen supply chains and community ties. Some adaptation measures may also enhance protection for shared heritage, improving visitor experiences and sense of place. These co-benefits are explored further in the ‘Place’ factor of Chapter 7. Without a methodological and evidenced based climate change risk assessment, these advantages may not be fully realised.

6.2 How to get started with your Climate Change Risk Assessment

To identify what to include in your climate change risk assessment, consider both the climate hazards that could potentially damage your business and any climate-related events that have already had an impact. You may have experienced heavy rainfall, high temperatures, and extreme weather events such as storms. Reflect on how these events have affected your operations:

- What happened?
- What was impacted?
- How frequently do these events occur?
- How did you respond?

Engage with your colleagues and visitors to gather insights into the impacts they have observed. Their experiences can provide valuable context and help build a more complete picture of your organisation's exposure to climate risks. This information will support your understanding of what you need to prioritise within your climate change risk assessment.

6.3 How to identify the risks to your heritage tourism business

To identify the climate change risks most relevant to your business, you will need to undertake a structured risk assessment. This process provides a framework for identifying which risks prioritising and address through adaptation. It typically involves evaluating two key factors: how likely a climate related event is to occur, and how severe its consequences would be. These factors are then combined to determine a risk rating.

To ensure that every aspect of your business is considered when completing a climate change risk assessment, be sure to evaluate the risks to People, Products and services, Premises, Processes, and Place. By doing so, you will gain a comprehensive understanding of the risks relevant to your business and its dependencies.

Likelihood
The possibility of the climate change event occurring.

The potential impact or consequence of the climate change event.

IOSH's definitions

Identify risks

The following tables outline how to score the likelihood and severity of potential climate-related events. These examples use the criteria and scoring provided by the EU guidelines for project managers, which have been adopted by Adaptation Scotland. You may choose to use these example scores or adapt them to fit your organisation's existing risk matrix. This ensures climate risk identification and consequent adaptation can be easily integrated into your daily operations.

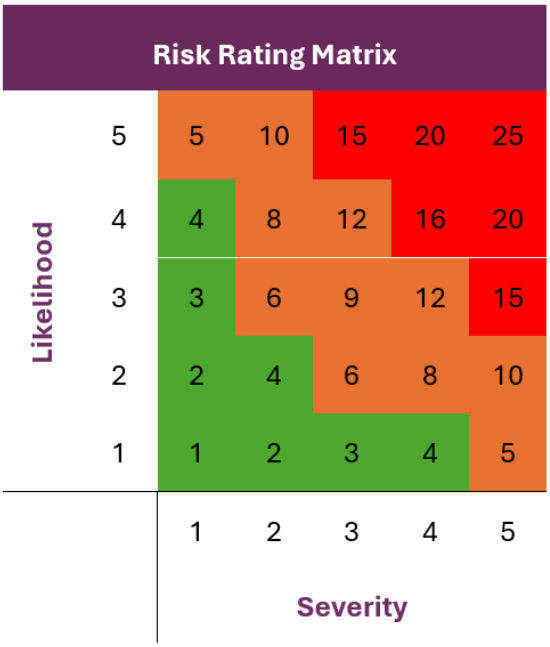
Table 6.1. Rating scores for impact likelihood

Rating	Description of impact likelihood
01– RARE	Highly unlikely to occur: 5% chance of occurring per year.
02 – UNLIKELY	Given current practices and procedures, this incident is unlikely to occur: 20% chance of occurring per year.
03 – MODERATE	Incident has occurred in a similar country / setting: 50% chance of occurring per year.
04 – LIKELY	Incident is likely to occur: 80% chance of occurring per year.
05 – ALMOST CERTAIN	Incident is very likely to occur, possibly several times: 95% chance of occurring per year.

Table 6.2. Rating scores for impact severity

Rating	Description of impact severity
01 – INSIGNIFICANT	Impact can be absorbed through normal activity.
02 – MINOR	An adverse event which can be absorbed through business continuity actions.
03 – MODERATE	A serious event which requires additional emergency business continuity actions.
04 – MAJOR	A critical event which requires extraordinary / emergency business continuity.
05 – CATASTROPHIC	Disaster with potential to lead to shut down or collapse of the asset / network.

Once you have rated the likelihood and severity of a specific risk, multiply the two scores to calculate an overall risk rating. This score can then be used with the risk matrix below to determine whether the risk is low, medium, or high. This helps you prioritise adaptation measures in a structured way, ensuring that resources are directed where they are most needed to protect your operations and heritage assets. For useful templates and guidance, refer to Adaptation Scotland's strategic climate risk assessment.



The Risk Rating Matrix.

Multiply the likelihood of an event occurring by the severity of the impact the event may cause to generate the risk rating. The following presents the risk categories:

- 15 to 25: **High**
- 5 to 12: **Medium**
- 1 to 4: **Low**

ClimateXChange developed guidance that provides support to help you use your climate change risk assessment findings to inform how you take this information forward within your business operations. This includes guidance on what emissions scenarios you should focus your assessment on and recommended timeframes to ensure you're planning for the future.

7 BUILDING RESILIENCE TO CLIMATE CHANGE THROUGH ADAPTATION

Guest enjoying a Virtual Reality experience

7. BUILDING RESILIENCE TO CLIMATE CHANGE THROUGH ADAPTATION

Once you understand how climate change could impact your business, the next step is to consider how to respond and build resilience. The following chapters include practical examples of adaptation measures from across the heritage tourism sector and suggestions of actions you can take.

7.1 How heritage tourism businesses are building climate resilience through adaptation

Historic Environment Scotland and VisitScotland engaged with heritage tourism businesses from across the country to find out how they are adapting to climate change. The businesses manage a wide range of operations, including museums, historic buildings, heritage tours (e.g. an archaeological walking tour) and living heritage experiences (e.g. a whisky distillery experience). This section summarises their experiences to provide you with practical examples of how to build climate resilience. All businesses consulted in this section have been anonymised to protect their confidentiality.

The responses have been organised into two sections: the climate-related consequences that businesses are facing, and the adaptation measures that have been taken in response. This helps to clearly illustrate both the drivers of adaptation and the practical applications being taken.

7.1.1 Consequences of climate change faced by heritage tourism businesses

Many of the businesses engaged with are experiencing a range of challenges from climate change, with both operational and visitor-related impacts becoming increasingly common. They reported damage or loss due to extreme weather events, particularly storms and flooding. ‘Loss’ in this context includes both the physical deterioration of built heritage and the financial setback caused by forced closures. Other challenges include:

- Energy insecurity, such as power cuts linked to severe weather, which disrupt daily operations.
- Overheating, increasing the risk of damage to sensitive heritage assets and affecting staff and visitor comfort and safety.
- Environmental changes, including shifting growing seasons and increased rainfall, especially affecting sites reliant on natural heritage.
- Supply chain disruptions, with at least one business experiencing a temporary closure as a result.
- Operational instability, as frequent closures caused by adverse weather reduce reliability, and increase maintenance demands.
- Declining or shifting visitation, with businesses noting reductions in visitor numbers, shorter visit durations, and changes to seasonal patterns.

Key Insight:

Every heritage tourism business is experiencing the impacts of climate change and some of these impacts are having major repercussions on business operations. Climate change is here and businesses must adapt to build resilience.

7.1.2. How some heritage tourism businesses are adapting to climate change

The businesses engaged with are at different stages of adapting to climate change. While some have invested in protective infrastructure, others are making low-cost, but effective changes to build resilience. Despite varied approaches, several common strategies emerged across the sector to address immediate risks and prepare for longer term impacts.

The most common adaptations include:

- Installing special infrastructure (e.g. flood defences, reinforcements against wind and erosion).
- Modifications to visitor routes and experiences to maintain safe access.
- Providing staff training on extreme weather responses.

These actions are typically modified to suit the specific needs and scale of each business. Examples from the sector include:

- A tour operator redesigned itineraries to include contingency plans for flooding, allowing for seamless shifts to alternative attractions when primary sites are inaccessible.
- A living heritage site safeguarded critical infrastructure, including a septic tank and borehole, by installing protective measures to prevent contamination during heavy rainfall.
- Several built heritage sites upgraded drainage systems to manage increased rainfall and debris, reducing erosion risks and maintaining access during storms.
- One nationwide organisation developed a weather response framework, triggering staff notifications and potential closures based on Met Office warnings, thereby improving safety and reducing uncertainty.
- To mitigate supply chain disruptions, one attraction grows its own food, sources locally for retail and construction, and prioritises local hiring, reducing dependence on external systems that may be vulnerable to climate impacts.
- One business now treats disruptive weather events as another incident, holding short team meetings after such an event to identify what went wrong, what went well, and how to improve.
- Another business highlighted they are focusing more on the local tourism market as disruptions to long-distance travel can impact business operations.

Key Insight:

Resilience in heritage tourism is becoming part of everyday practice. It is less about eliminating disruption and more about managing it confidently, by planning ahead, learning from each event, and building a culture where adaptation is normal.

Top Tip:

Spread adaptation investment across the whole organisation. Alongside physical upgrades like drainage and flood barriers, prioritise staff training, reflection, and knowledge sharing to strengthen how your business responds and adapts. Tailored and regular training for leadership or management is also crucial for top level climate change planning that impacts business operations.

Adaptation measures have had mixed effects on these businesses. For example, a heritage tour operator found that auditing itineraries due to flooding did not lead to formal complaints, there was still a concern about the impact on visitor experience. However, identifying alternative sites created valuable new partnerships, expanding their network and offering. Several businesses noted the financial cost of protective infrastructure, such as flood defences and drainage systems. Despite these upfront expenses, the long-term savings from preventing damage and repairs justifies the investment in adaptation measures. Training staff to manage extreme weather events has had a particularly positive impact. One business operating a built heritage site found that well-trained staff enabled them to remain open during severe weather while ensuring safety and maintaining a positive visitor experience.

Key Insight:

Though some adaptations require significant investment, the cost of doing nothing is higher. Long-term savings from avoided damage, alongside improved resilience, makes adaptation critical for business continuity.

Top Tip:

Adaptation can bring unexpected benefits. Itinerary changes, new partnerships and diversifying supply can expand your offering, strengthen local networks, reduce costs, and create shared value for other businesses and your community.

7.2 Adaptation measures that you could implement

This section outlines practical examples of actions that you can take to build resilience to the impacts of climate change. Some actions may be simple and low-cost, while others may involve longer-term strategic planning and partnerships.

It is important to think about what is within your control and what you can influence. For example, you may not be able to stop a storm or a coastal erosion event, but you can influence how your business prepares, responds, and recovers. This could be through staff training, community partnerships, or visitor messaging. There is nothing that you cannot influence in some way, even if you cannot directly change it. **Adaptation is about making practical, locally informed choices that build resilience to climate change over time.**

For those responsible for historic buildings, Historic Environment Scotland's *Short Guide: Climate Change Adaptation for Traditional Buildings* can help you make informed decisions about caring for and adapting your premises in ways that respect their character.

Remember, there is no one-size-fits-all approach. Adaptation is a journey, and even small steps can make a big difference in building resilience over time.

7.2.1 Climate related event: Long-term coastal flooding

Long-term coastal flooding, resultant from sea level rise, threatens heritage tourism by making sites less accessible, reducing visitor numbers, and placing staff and public safety at risk. Floodwater can damage historic buildings and disrupt services such as tours, exhibitions, collection storage and hospitality. Coastal locations may be permanently altered or inhabitable due to sea level rise and related issues such as erosion.

Table 7.1. Example adaptation measures for long term coastal flooding

Key Business Area	Example adaptation measures for key business area
People	Raise awareness of the risks of long-term coastal flooding among both visitors and staff; this could be through a dynamic alert system or visual cues to ensure safety during changing conditions. Provide all staff and visitors with appropriate personal protective equipment to continue their work or experience safely.
	Involving all staff in regular training and access to mental health support can boost team morale. Including staff members in preparedness planning also gives the team confidence in dealing with flood related impacts and consequent stress.
	Make sure to promptly and clearly notify both visitors and staff about affected routes, entrances or experiences, and help them to plan ahead, ensuring inclusive visitor experiences and working environment. If alternative routes are implemented or constructed, ensure they are wheelchair accessible and inclusive even during a flooding event.

Table 7.2. Example adaptation measures for long term coastal flooding

Key Business Area	Example adaptation measures for key business area
Products and Services	Strengthen your supply chain by diversifying your network of suppliers to reduce the risk of disruption from coastal flooding. Identify alternative suppliers and develop contingency plans to ensure continuity. Work collaboratively with suppliers and other partners to build a more resilient supply chain. This will also strengthen your support network.
	Consider diversifying the services that you offer to minimise the impact of long-term coastal flooding. This could involve investing in virtual experiences, introducing indoor alternatives or identifying less flood prone locations to add to your itinerary.
	To ensure the impact on visitor experience is reduced, make sure all information or interpretation panels remain accessible. You could take advantage of alternative experiences that use the water such as kayaking experiences or providing Wellington boots to guests. You could also engage visitors in identifying and reporting flooding whilst also raising awareness about climate change.

Table 7.3. Example adaptation measures for long term coastal flooding

Key Business Area	Example adaptation measures for key business area
Premises	Evaluate the location of your electrical appliances and energy sources such as solar panels, boilers, heating, ventilation and air condition systems. Make sure they are above the projected flood levels, installing rainwater collection above flood levels will ensure water availability if mains supply is contaminated by flood water.
	Invest in infrastructure such as flood sacks permanent flood defences, flood-proof doors and windows, and enlarging drainage systems. Consider re-locating to alternative premises that have a lower risk of long-term coastal flooding. Also, re-evaluate your existing insurance to ensure you are covered for long term coastal flooding.
	Support or implement the construction of raised boardwalks or modular visitor paths that can be moved or reconfigured as flooding patters change. Make sure to use water resistant materials such as Ekki wood. You could also use nature-based solutions such as native plants to stabilise soil and minimise damage from flooding.

Table 7.4. Example adaptation measures for long term coastal flooding

Key Business Area	Example adaptation measures for key business area
Processes	Use the SEPA flood Risk Map to identify the critical elements of your heritage tourism business and develop a climate change policy that outlines actions to protect them from long term coastal flooding. Establish short and long-term investment plans to guide necessary adaptations and regularly update your policy as climate risks evolve.
	Install solar panels and battery backups to maintain power during flood-related outages, ensuring critical systems such as alarms, and lighting remain operational. Additionally, investing in Augmented or Virtual Reality experiences could ensure activities can continue during flood events whilst maintaining safety and visitor experience.
	Develop and regularly rehearse a flood response protocol tailored to the site's specific risks. This should include staff training, evacuation procedures, artefact protection routines, and communication plans for visitors. Following any flood event, conduct a dynamic assessment of damage to identify vulnerabilities. Update procedures and implement preventative measures, ensuring the same type of damage is less likely to occur again.

Table 7.5. Example adaptation measures for long term coastal flooding

Key Business Area	Example adaptation measures for key business area
Place	Find out whether your destination has completed a Local Development Plan, Local Adaptation Plan or Local Coastal Management Plan. If these exist, they may offer guidance on what action you could take to support the local vision and required action. Maintain clear communication with your visitors about the impacts of climate change on your local area and what they could be doing to support, such as donating or volunteering.
	Collaborate with local businesses, communities, and institutions to pool resources, share knowledge, and host joint events that build resilience to long term coastal flooding. Sharing experiences, seeking feedback, and learning from others fosters community cohesion, enhances visibility, and supports cost-effective adaptation for all involved.
	Engage with your local authority and environmental agencies to explore support for adapting local infrastructure to long-term coastal flooding. This could involve contributing to the development of natural coastal defences or advocating for or co-investing in raised pathways or flood-resilient visitor facilities to protect both heritage assets and community access.

7.2.2 Climate related event: Prolonged periods of rain and increased frequency of flooding

Prolonged rainfall and frequent flooding present significant risks to the heritage sector. Staff and visitors may face safety hazards and increased site closures, while discomfort during visits can reduce overall satisfaction. Services such as guided tours and outdoor events are vulnerable to disruption, affecting income and reputation. Historic premises are at a heightened risk of water damage, damp, and decay, leading to higher repair costs and conservation challenges. Additionally, the broader setting and sense of place may suffer, with landscape features being eroded and travel routes disrupted, impacting the visitor experience and heritage value.

Table 7.6. Example adaptation measures for prolonged periods of rain and increased frequency of flooding

Key Business Area	Example adaptation measures for key business area
People	Develop staff training and communicate clear safety protocols for emergency responses and flood safety.
	Consider establishing peer support networks and trauma-informed care for flood-affected individuals among staff and visitors.
	During site closures, increase engagement with visitors through virtual tours, online exhibitions, or live-streamed events.

Table 7.7. Example adaptation measures for prolonged periods of rain and increased frequency of flooding

Key Business Area	Example adaptation measures for key business area
Products and Services	Build supply chain contingency plans with backup options for flooding; assess supplier locations and flood risks in your procurement checklist.
	Offer covered areas and waterproof gear rentals. Create indoor or sheltered visitor experiences with interpretive boards and tour stops in protected locations.
	Enhance your online presence to keep visitors engaged during closures or cancellations.

Table 7.8. Example adaptation measures for prolonged periods of rain and increased frequency of flooding

Key Business Area	Example adaptation measures for key business area
Premises	Use water-resistant materials in construction, renovations, or repairs, and adopt rainwater harvesting to utilise overflow during warmer months.
	Identify areas of your premises that may be prone to mould growth and create an action plan to ensure these areas are protected.
	Provide staff with PPE such as waterproofs and wellington boots for floods. Train staff in outdoor first aid and water-safe defibrillator use.

Table 7.9. Example adaptation measures for prolonged periods of rain and increased frequency of flooding

Key Business Area	Example adaptation measures for key business area
Processes	Establish a reliable, flood-proof cancellation policy with refunds, clearly stated during booking. Additionally, ensure that there is a fair compensation policy for staff who may lose work due to cancelations.
	Regularly engage and monitor SEPA's Floodline, which you can sign up to get notified by text, call or email.
	Develop a procedure to assess flood damage and identify preventive actions, such as clearing storm drains, gutters and inspecting roofing for integrity and proper function. Staff may also be required to regularly inspect roofs, windows, and basements for signs of water ingress.

Table 7.10. Example adaptation measures for prolonged periods of rain and increased frequency of flooding

Key Business Area	Example adaptation measures for key business area
Place	Partner with local, regional, and national organizations to help store collections in safe spaces, host off-site exhibits, lectures, or events, boosting community cohesion, increasing visibility, and sharing knowledge beyond your area.
	Share costs or co-apply for funding within your community network to strengthen connections and diversify your supply chain. This improves community ties, boosts local resilience, and creates a safer, more welcoming environment for residents, visitors, and new businesses.
	Collaborate with your local authority, community, and councillor to fix drainage and flood defence issues. Consider green infrastructure and nature-based solutions.

7.2.3 Climate related event: More frequent, intense and longer-lasting heat events

Increasingly frequent, severe, and prolonged heat events can pose health and safety risks for both staff and visitors, particularly at outdoor heritage sites with limited shade or cooling facilities. Higher temperatures raise the likelihood of wildfires and droughts, which can damage historic landscapes, intensify pressure on water resources, and threaten the structural integrity of vulnerable buildings. While some sites may experience a short-term rise in visitor numbers due to warmer weather, this can strain infrastructure, reduce site resilience, and increase wear on fragile environments.

Table 7.11. Example adaptation measures for more frequent, intense and longer lasting heat events

Key Business Area	Example adaptation measures for key business area
People	Assess if it is safe to work outside. Ensure staff are trained on how to stay safe in hot weather and provide staff with summer uniforms that keep them cool and offer UV protection. Provide staff with adequate PPE, including sunhats, sun cream, tick removers, and ensure they stay hydrated. Consider introducing staggered shifts and plenty of breaks.
	Develop marketing campaigns to inform visitors of how they can stay safe at your business during the heat. This can include warnings about the heat and reminders to stay hydrated, bring sun cream, stay in shaded areas and how to stay safe in water.
	Develop ways to manage visitor numbers, particularly during warmer weather. This could be by limiting numbers, or path management, to avoid overcrowding as well as introducing online time ticketed booking systems.

Table 7.12. Example adaptation measures for more frequent, intense and longer lasting heat events

Key Business Area	Example adaptation measures for key business area
Products and Services	Check with suppliers to identify areas of potential risk from heat related pressures. Diversify supply chain providers to minimise these risks.
	Stock up on 'warm weather' products such as suncream, electrical fans, and provide opportunities for staff and visitors to hydrate. Have a dedicated 'off peak' marketing campaign to highlight the benefits of cooler periods of the year.
	Develop alternative visitor experiences that are inside, in shaded areas, or in the early morning or evening to minimise the risk to staff and visitor health.

Table 7.13. Example adaptation measures for more frequent, intense and longer lasting heat events

Key Business Area	Example adaptation measures for key business area
Premises	Be mindful of your water use and try to save water where you can. Utilise rainwater recycling from your roof or yard to minimise water use.
	Install blinds to minimise high temperatures inside for staff and visitors. Have a defibrillator that is accessible and ensure staff are trained to use it.
	Invest in infrastructure to minimise the risks to health, such as providing shaded areas for people to cool down in and refillable water stations. Manage outdoor water spaces and add notices discouraging swimming in the water if there is an algal bloom.

Table 7.14. Example adaptation measures for more frequent, intense and longer lasting heat events

Key Business Area	Example adaptation measures for key business area
Processes	Offer flexible cancellation and rescheduling policies and consider providing vouchers for future visits, encouraging guests to return once the site reopens.
	Invest in cooling systems, such as air conditioning, to reduce the likelihood of equipment overheating.
	Develop procedures that align with weather warnings to ensure staff and visitor safety in the case of a severe heat event. Create a procedure for assessing damage from intense heat events and identifying solutions to help prevent further damage.

Table 7.15. Example adaptation measures for more frequent, intense and longer lasting heat events

Key Business Area	Example adaptation measures for key business area
Place	Check the SEPA Water Scarcity Reports to find out about water scarcity in your local area. If your local area is in a drought, be mindful that there may be a flooding risk if heavy rainfall is predicted. If you're in an urban area, support planting trees and hedgerows, that will help to cool down temperatures.
	Collaborate with the local community to organise and promote community-focused events in the off-peak months. This will help to increase the value of tourism for the community and ensure they can experience the benefits of tourism for longer.
	Support community driven projects to create more shaded areas. This could include planting hedgerows and trees or built infrastructure. Engage with local businesses to promote the benefits of working with local communities.

7.2.4 Climate related event: Increased frequency and severity of storm events

More severe storms can cause unanticipated and long-lasting disruptions for heritage tourism businesses. Visitors and staff may face access issues or safety risks, particularly at remote or exposed sites. Storm damage to historic buildings, signage, and grounds can result in the loss of irreplaceable heritage and incur high repair and conservation costs. Services may be cancelled or delayed more often, increasing the demand for flexible bookings and robust cancellation policies. Over time, repeated storm impacts may alter the character of heritage landscapes, affecting the site's sense of place and long-term appeal.

Table 7.16. Example adaptation measures for increased frequency and severity of storm events

Key Business Area	Example adaptation measures for key business area
People	Develop staff safety training to enable them to safely and efficiently respond to storm events. This should include first-aid training.
	Observe how storms develop by consulting the weather warnings website. Check in with your staff to ensure they can travel safely. Don't open if it is unsafe to encourage travel.
	Provide quick and clear communication to all staff and visitors about changes to experiences, including partial and full closures.

Table 7.17. Example adaptation measures for increased frequency and severity of storm events

Key Business Area	Example adaptation measures for key business area
Products and Services	Build a contingency plan with your suppliers to identify ways you could minimise disruption.
	Offer flexible bookings, including rescheduling or refunds during weather related disruptions. Make sure that this booking policy is clear and accessible.
	Include interpretation about climate change and how your business is adapting into your visitor experience.

Table 7.18. Example adaptation measures for increased frequency and severity of storm events

Key Business Area	Example adaptation measures for key business area
Premises	Build a contingency fund for business down time, paying staff and repairing storm damage. You may be able to access funding for adaptation from Historic Environment Scotland's Historic Environment Grant Programme or seek advice and training from the Engine Shed.
	Carry out regular building inspections to identify vulnerabilities from storm events that could cause damage to building structures, particularly for heritage buildings. Ensure your insurance covers your business for storm damage.
	Increase inspections around your property for potential hazards. Prune and remove vulnerable trees that could fall and cause damage to your business during a storm. Ensure loose items, such as chairs, canopies and signs are tied down and secure.

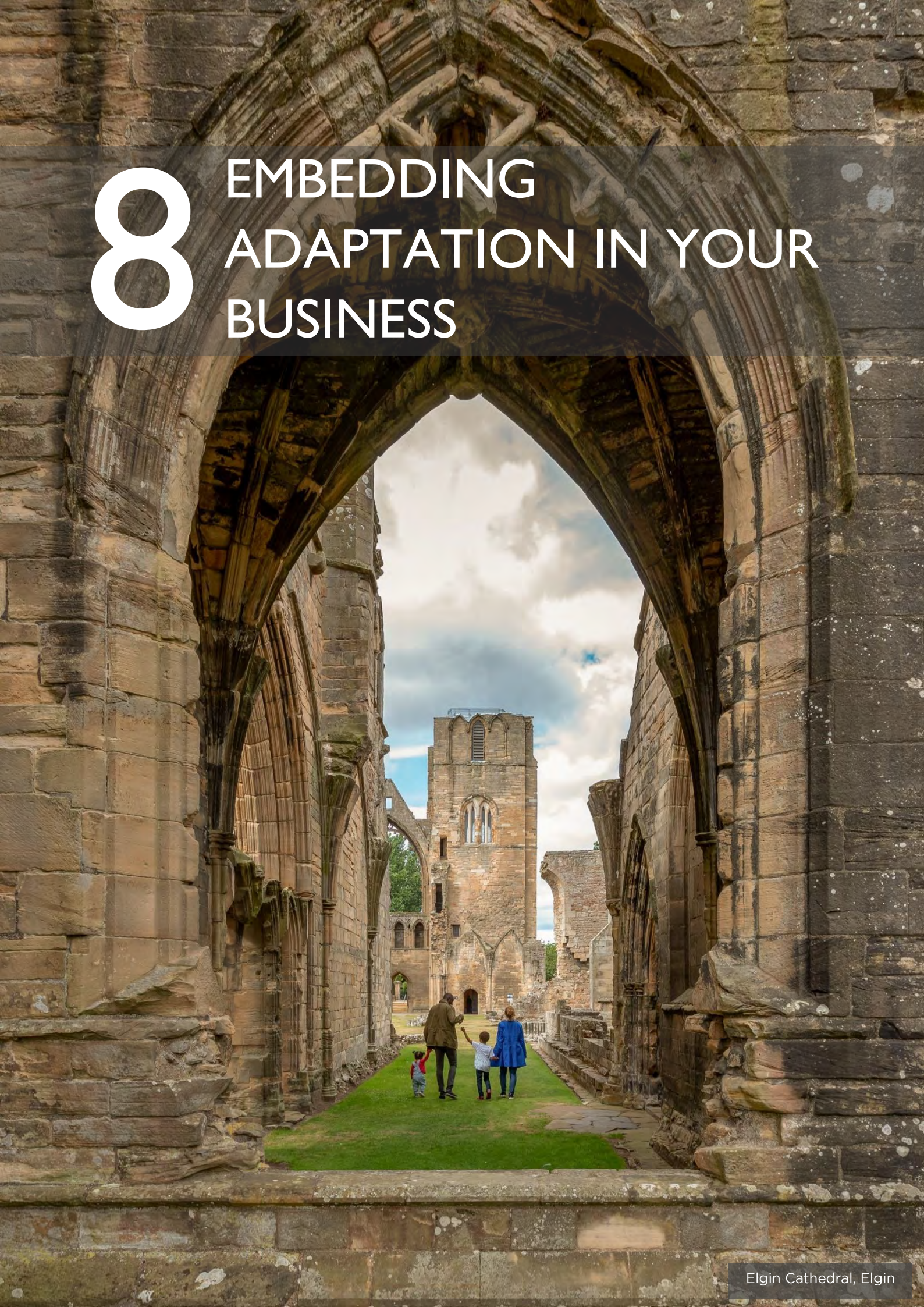
Table 7.19. Example adaptation measures for increased frequency and severity of storm events

Key Business Area	Example adaptation measures for key business area
Processes	Offer flexible cancellation and rescheduling policies, consider providing vouchers for future visits to encourage guests to return once the site reopens.
	Provide quick and clear communication to visitors about changes to experiences or closures due to storms. Digital interpretation tools, such as VR/AR and mobile apps, could be deployed when outdoor weather conditions are unsuitable.
	Develop a procedure for assessing damage from storm events. Identify actions you can take to help prevent further damage.

Table 7.20. Example adaptation measures for increased frequency and severity of storm events

Key Business Area	Example adaptation measures for key business area
Place	A storm may impact you differently depending on where your business is. The Met Office UK weather warnings provides updated regional information on weather warnings, like storms.
	Engage with your local community, including other businesses, to learn about how they are adapting to storm events. Work together and share resources to create adaptation plans.
	Work with your local authority and community to develop storm procedures and defences. Establish relationships with local emergency services to learn best practice on how to develop effective emergency plans.

8 EMBEDDING ADAPTATION IN YOUR BUSINESS



Elgin Cathedral, Elgin

8. EMBEDDING ADAPTATION IN YOUR BUSINESS

Adaptation is not a one-off task, but an ongoing process of learning, responding, and evolving. Embedding this thinking into how you plan and operate will help ensure you can continue to deliver meaningful visitor experiences while protecting the heritage you celebrate. Resilient businesses are not only better prepared, they are also better placed to lead in a changing climate.

8.1 Making your own Adaptation Plan

The results from your climate change risk assessment will highlight how the risk levels for your business may vary for each hazard. Use this information to prioritise actions with your team.

Adaptation is about making thoughtful, proactive choices to strengthen your business resilience and ensure that it thrives. Use the information gained from your climate change risk assessment and risk prioritisation exercise to develop an adaptation plan that builds your capacity to respond to climate change impacts and adapt.

Historic Environment Scotland's Climate Ready HES is a relevant example of a climate change adaptation plan for heritage tourism businesses and organisations It outlines key risks and adaptation responses, with additional reports detailing its development.

Regularly review and update your adaptation plans and risk assessments to keep them current and effective.

Climate change adaptation is part of a wider range of actions you can implement to increase your business' resilience. A broader climate action plan can provide valuable structure for shaping your business' overall response to climate change. VisitScotland's Business Support Hub offers guidance on how to develop short-, medium- and long-term actions in adaptation, mitigation and sustainability.

VisitScotland's work is led by Destination Climate Action Plan which underpins the organisation's support of Scotland's ambition for a transition to Net Zero.

8.2 Start your Adaptation Journey

You now have the tools to begin this journey. Start small but think big. Act locally, involve your team, and treat each adaptation step as an investment in the future of your business and the heritage on which you rely. No action is too small, and no business is too early to begin. Resilience starts now, by planning, adapting, and leading with purpose. Remember the Acronym TIPS: Think about Impacts, Identify Risks, Plan Action, and Start Action.

Start action

8.3 REFERENCES AND FURTHER READING

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