



Adaptation Learning Exchange

Workshop 1: Communicating and building the business case

Adaptation Scotland...

...provides advice and support to help organisations, businesses and communities in Scotland prepare for, and build resilience to, the impacts of climate change by...

- providing information on recent and future climate trends;
- helping private and public sector organisations and communities to understand how future climate change will affect them; and
- helping private and public sector organisations and communities to develop a planned approach to adaptation.

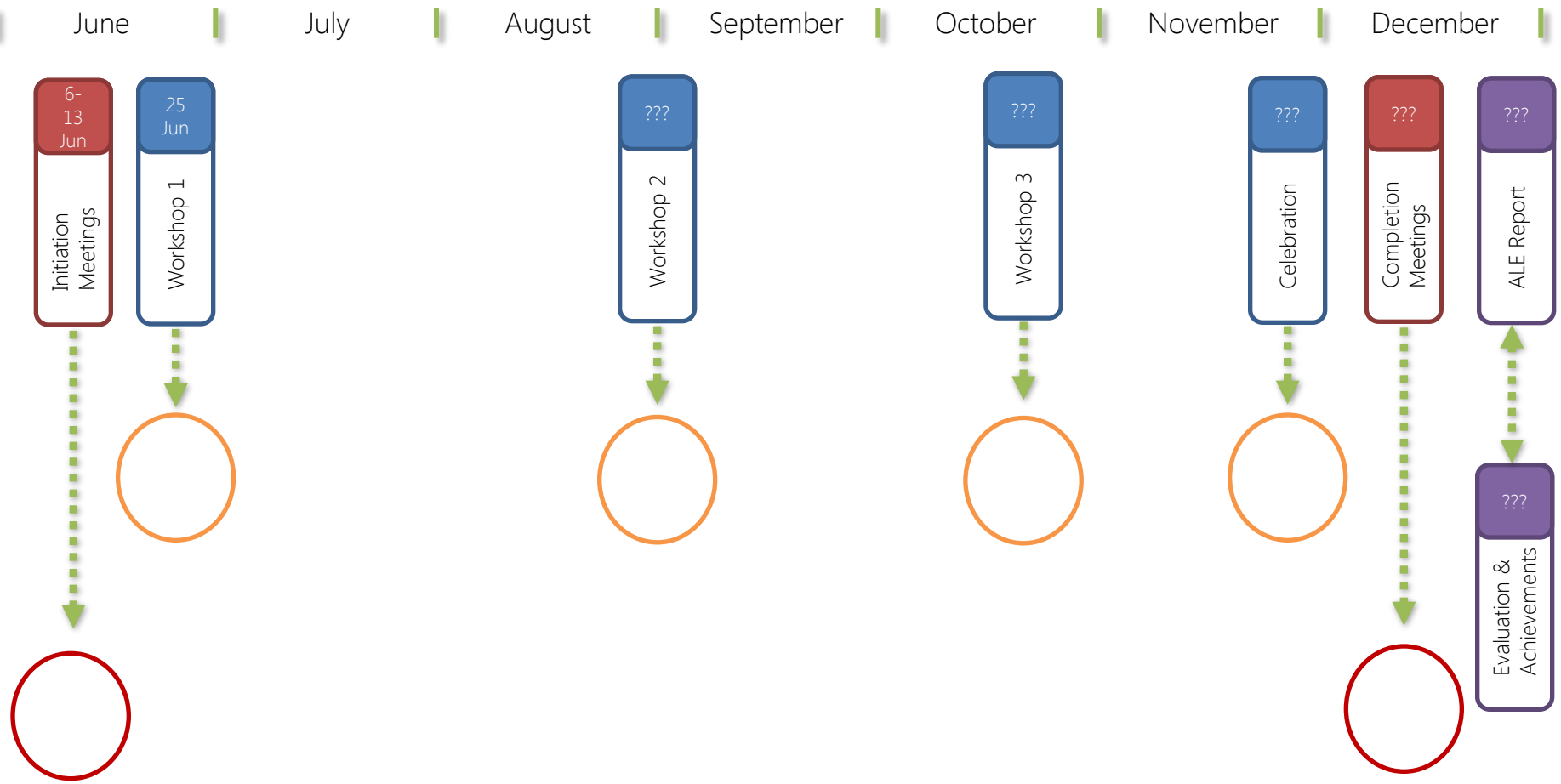
Adaptation Scotland is a programme funded by the Scottish Government and delivered by Sniffer

Aims: Adaptation Learning Exchange

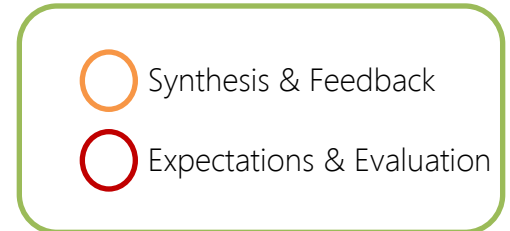
- Progress adaptation planning individually and collectively
- Co-create solutions
- Share lessons across the public sector
- Develop and recognise leadership
- Build a peer network that lasts beyond ALE



This course has received the approval of
The Chartered Institution of Water and
Environmental Management



Adaptation Learning Exchange



Workshop 1: Communicating adaptation and building the business case

Enhance our ability to hold meaningful discussions and deliver persuasive arguments:

- Adapting to climate change presentation
- Transformation and leadership
- Reflect on experiences of engaging others
- Develop an elevator pitch
- Examine our goals and who can help



Ground rules

Be open and willing to contribute

- Share your experiences, knowledge and new ideas
- Respect the views of others
- Make the most of the opportunity to work together and learn from each other
- Give constructive feedback – workshops are stakeholder-led



Ground rules

Be honest and open

- Forum for honest and open discussion
- Chatham House Rule will apply to discussions - participants are free to use the information received, but neither the identity nor the affiliation of the speaker(s) may be revealed
- Draft workshop reports will be circulated for comment before being published.

Introductions

Write down on a post-it note one positive thing you have learned or achieved in relation to adaptation that you want to share with others



Introducing Adaptation

Adaptation Scotland – Science Officer

Dr Joseph Hagg

introducing climate change adaptation

What is adaptation?

How is our climate changing?

We usually cover this in an introductory presentation (10-20 minutes)

This varies depending on the audience and purpose – although we often include some generic aspects.

We usually deliver in the context of a workshop – and hold sessions to draw this information from participants.

What impact will it have?

How can we respond?



introducing
climate change adaptation

inform

overload

explain

engage

comprehensive

concise

generic

specific



an example presentation...



What is adaptation?

Adaptation: The adjustment in **economic, social or natural systems** in response to actual or expected **climatic change**, to limit harmful consequences and exploit beneficial opportunities.

Scottish Climate Change Adaptation Programme (2014)

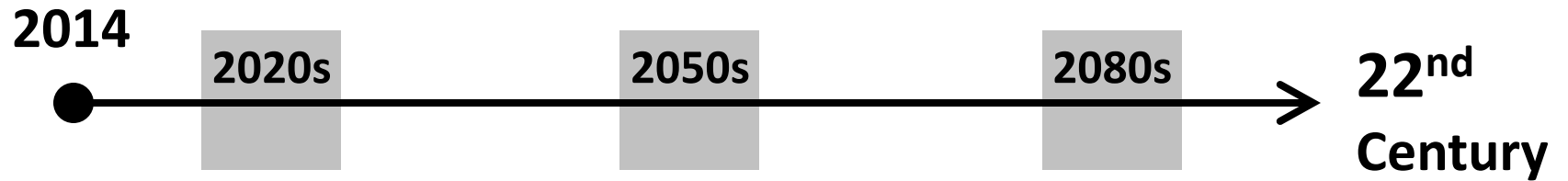


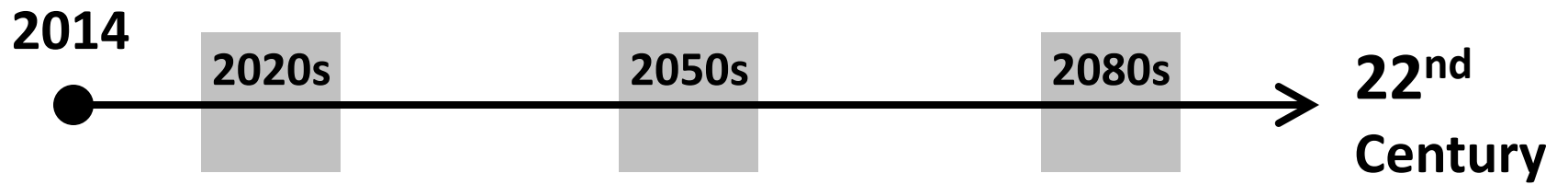
Change is constant.

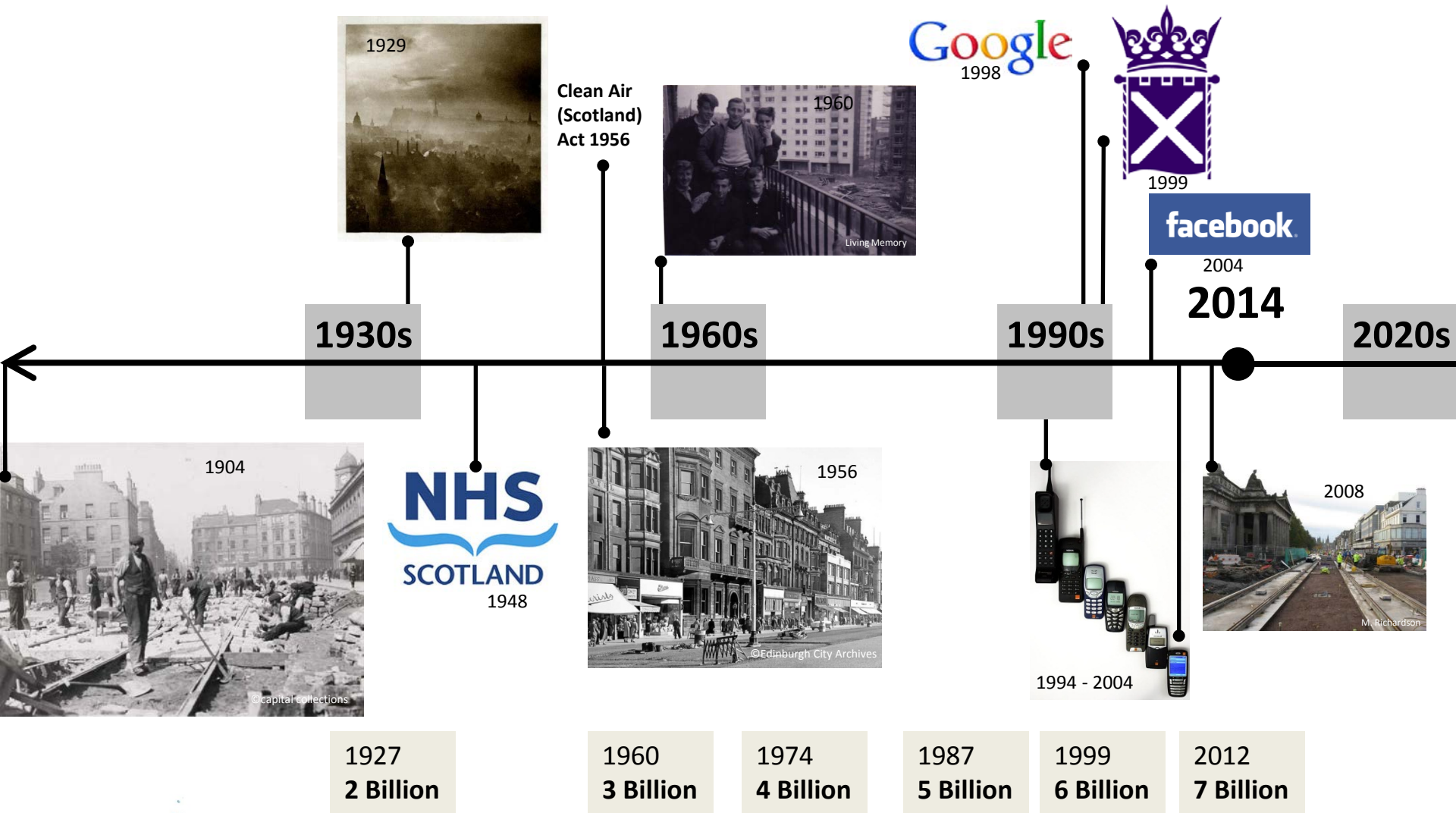
environmental
social
climate
legal
political
economic
technological

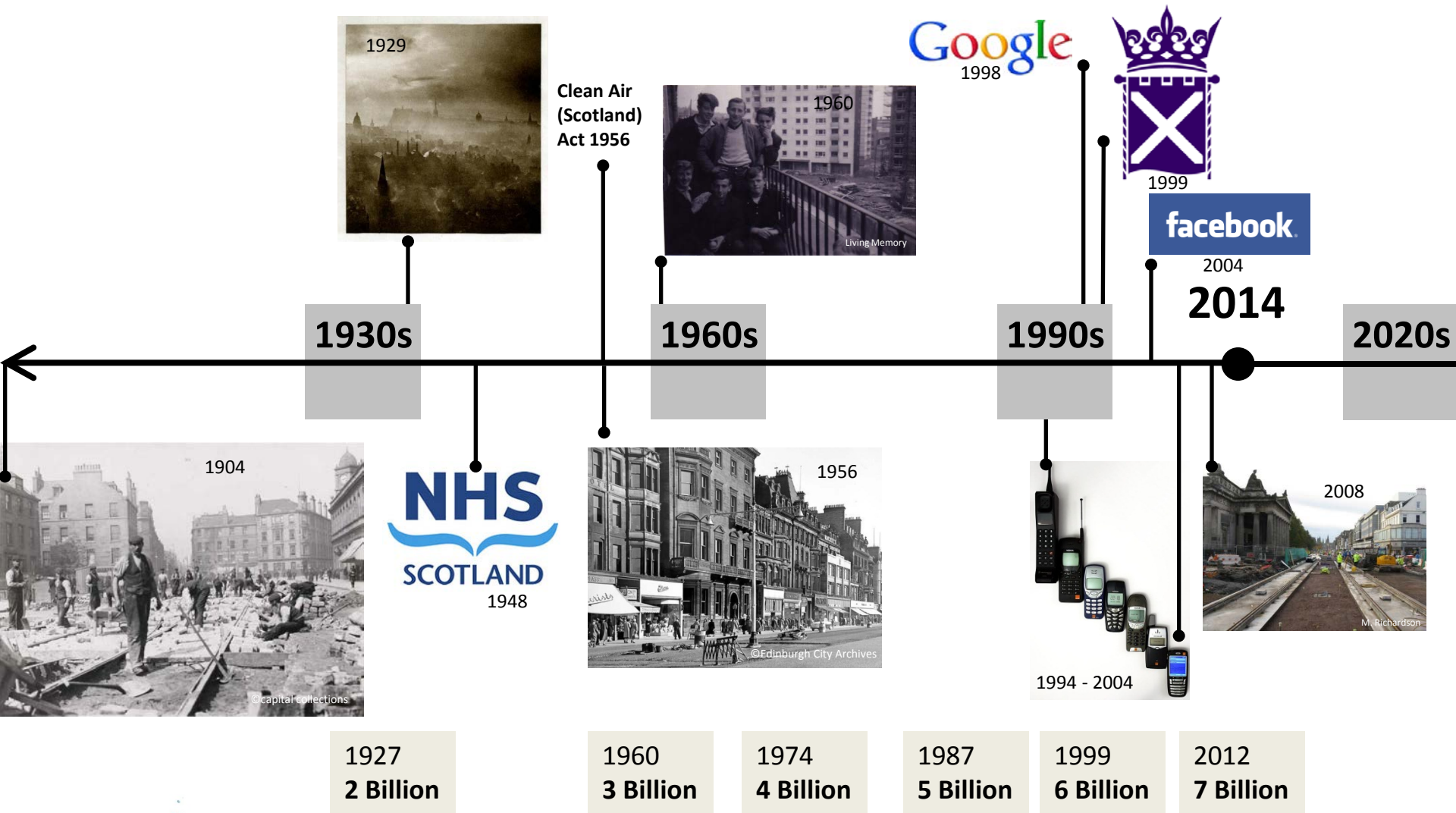


The future? What timescale?









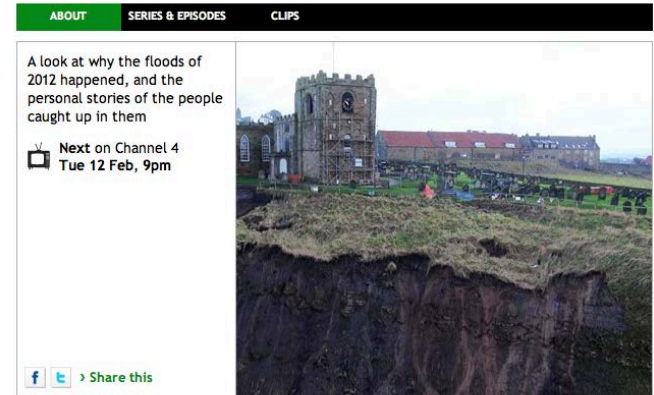
How is our climate changing?



Weather affects us.



The Year Britain Flooded



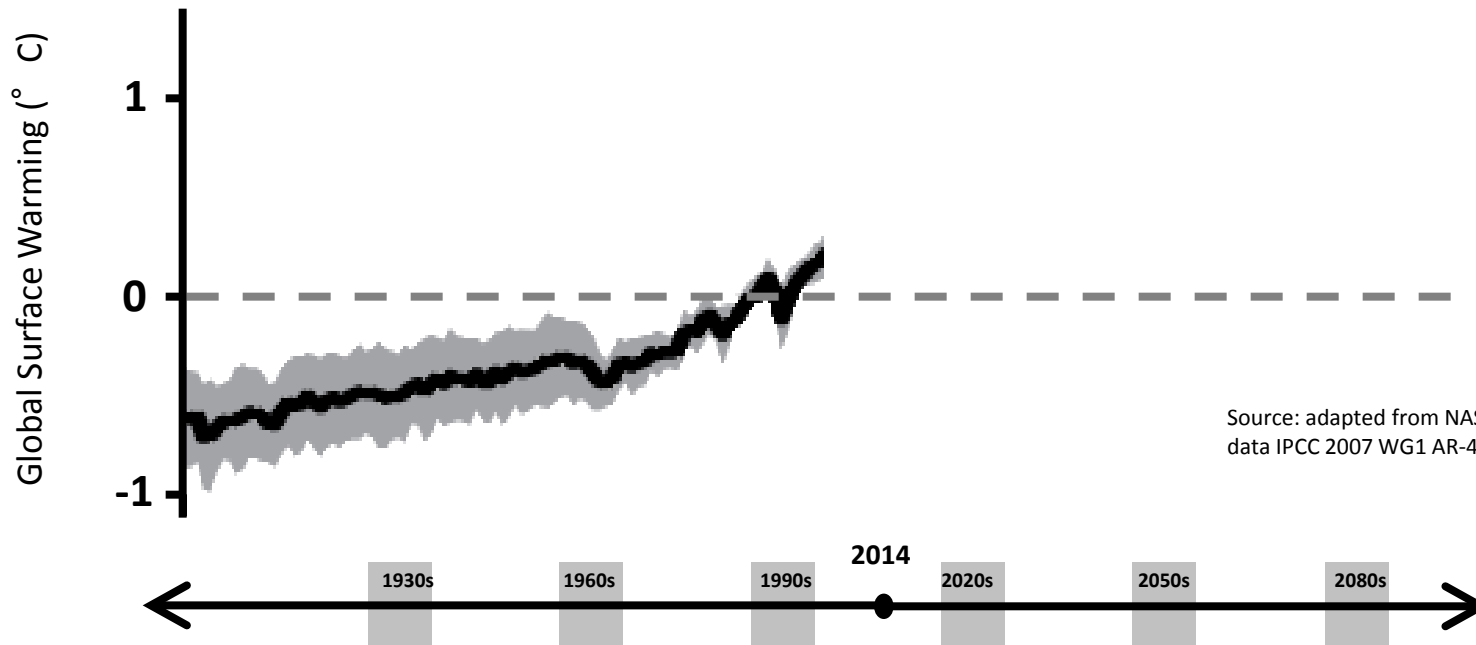
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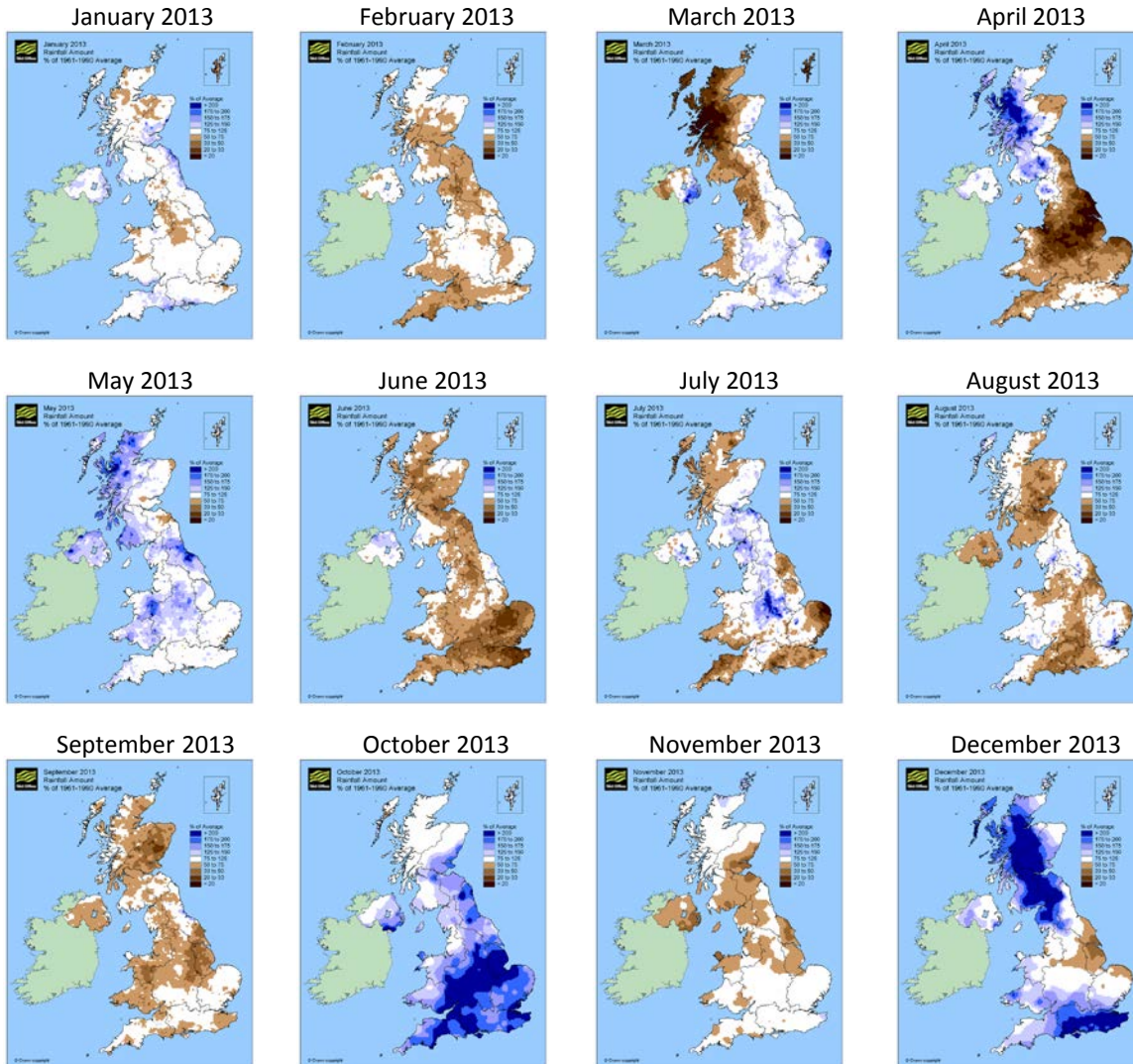
Climate Information:



The climate has been changing.



Our climate is highly variable.

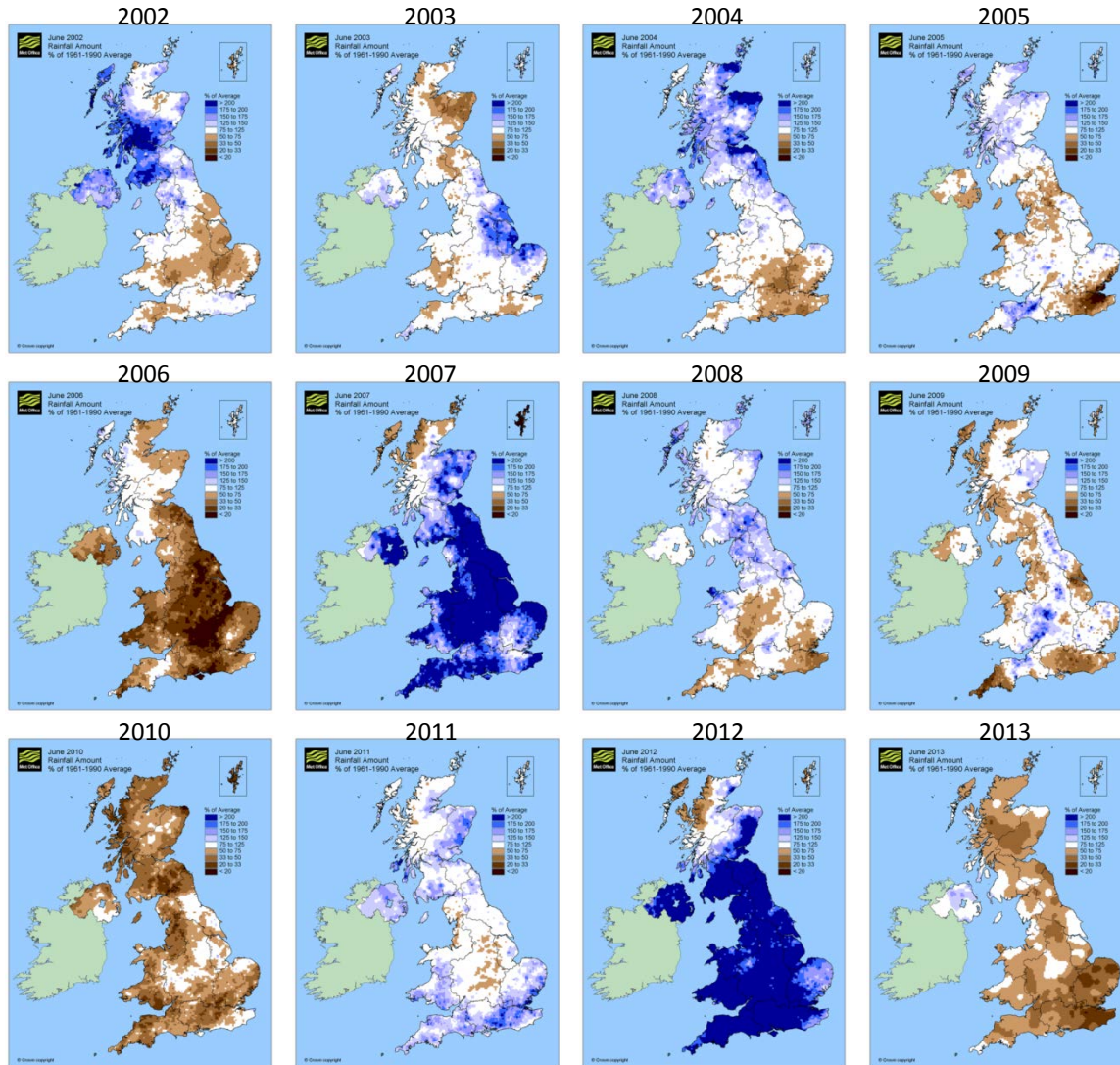


2013 Rainfall:



Our climate is highly variable.

June Rainfall:
(2002-2013)



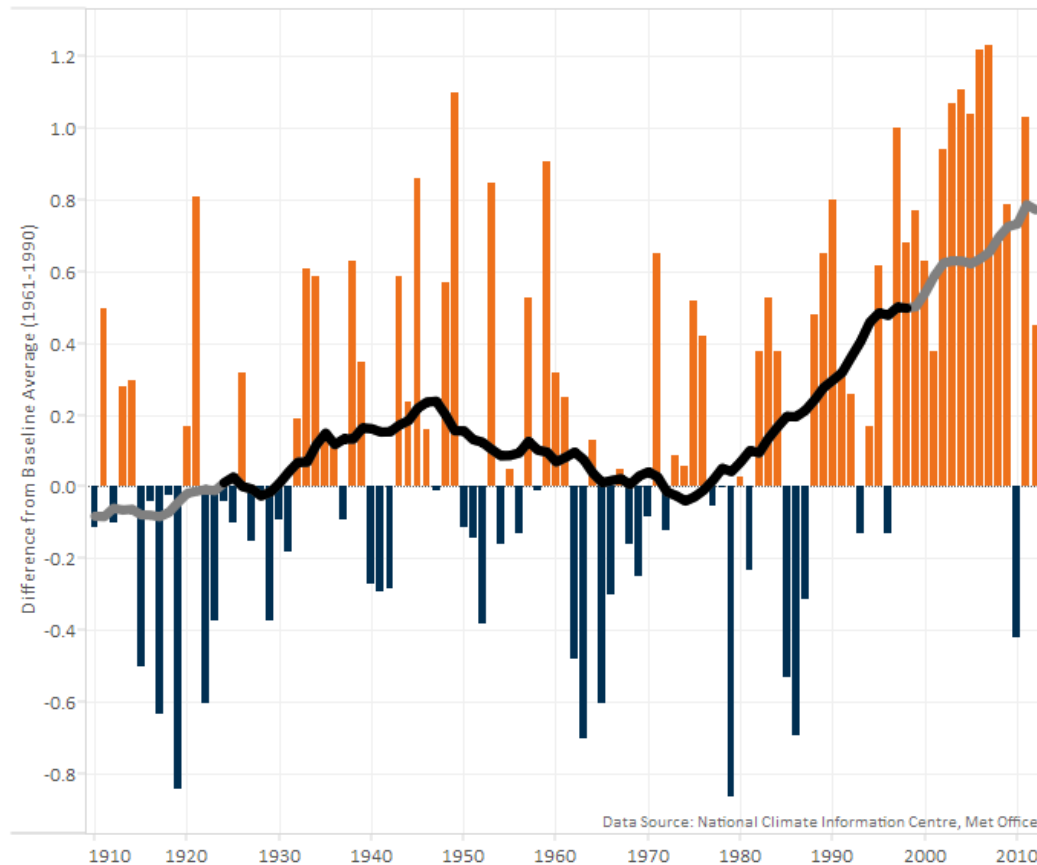
Long term trends in Scotland



Climate Trends for Scotland



Annual Mean Temperature (°C) - West Scotland



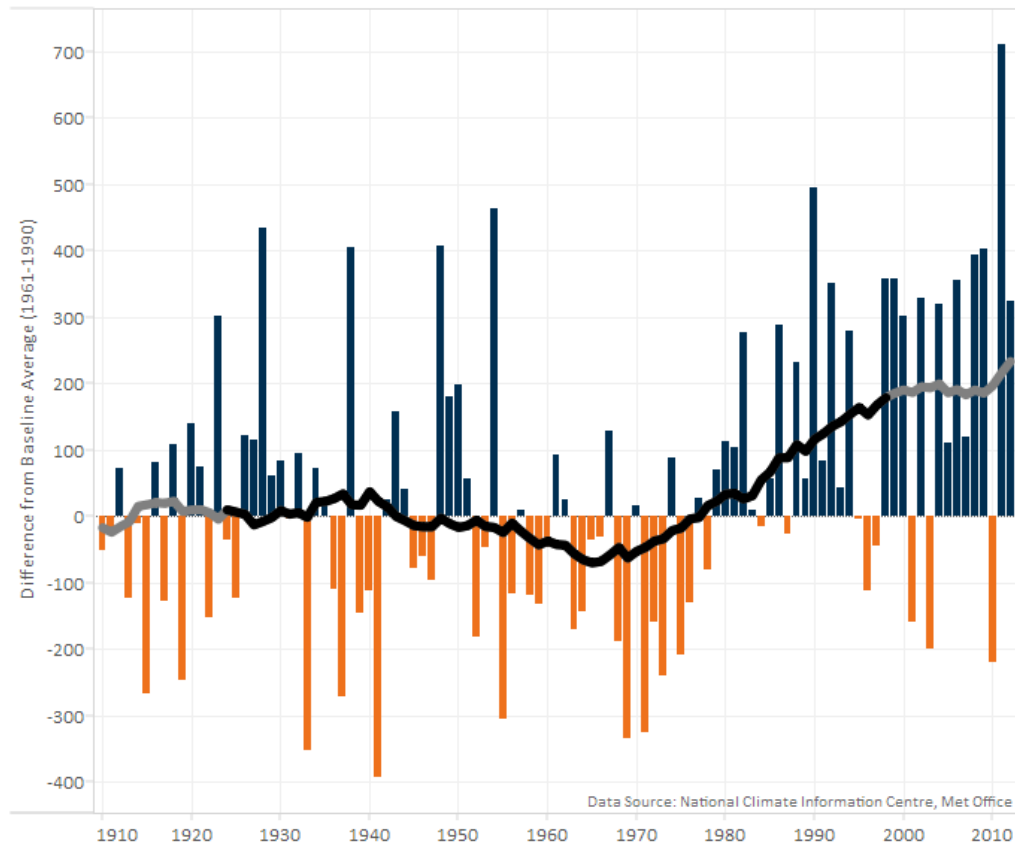
Long term trends in Scotland



Climate Trends for Scotland

Adaptation
Scotland
supporting climate change resilience

Annual Rainfall (mm) - West Scotland

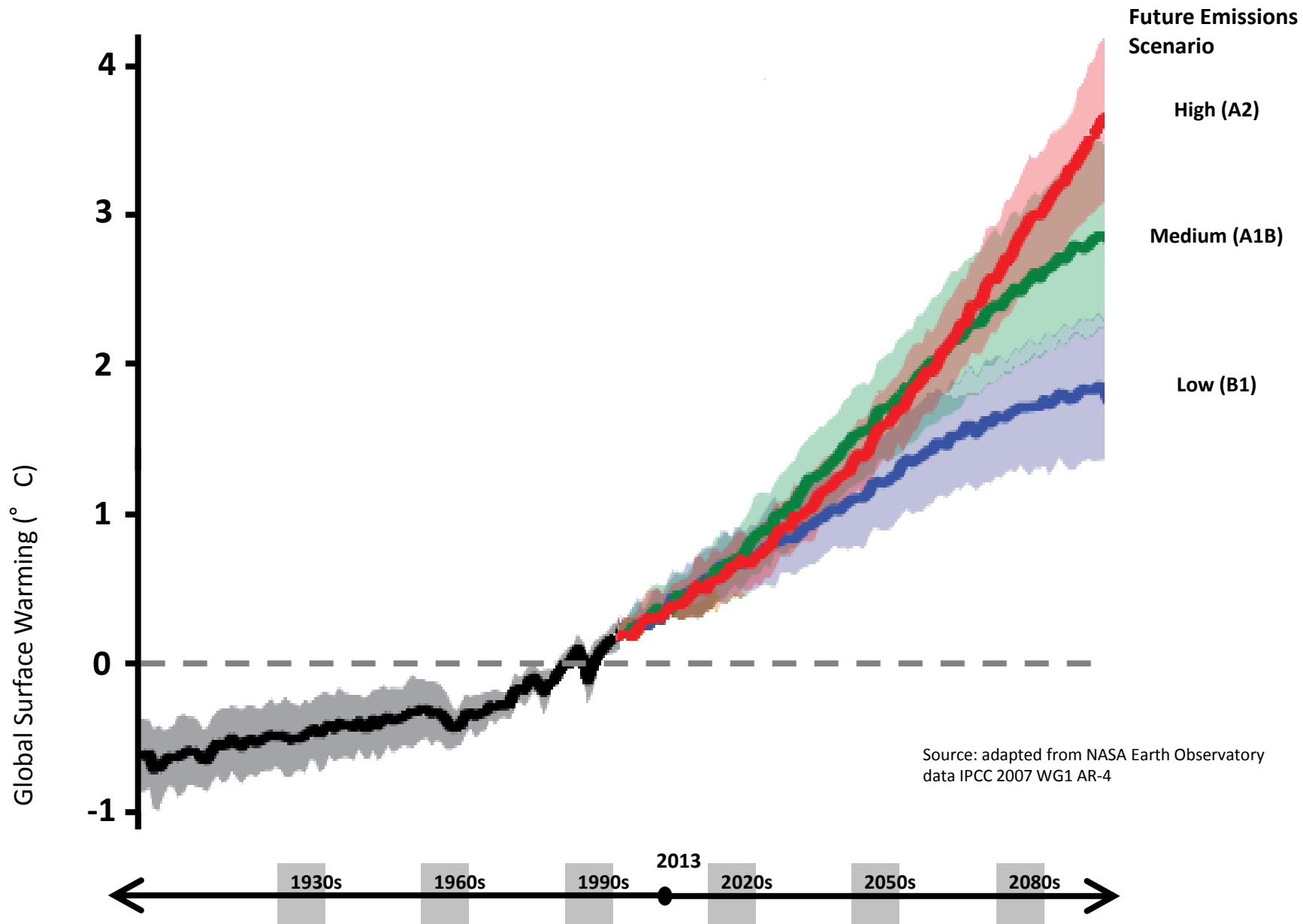


Are we 'adapted' to today's climate?



We need adaptation to present weather and climate.

But what about adaptation to **future climate change**?



What do we know about Scotland's future climate?

Over the last few decades we have seen remarkable progress in our understanding of climate – and how humans are changing it...

... and we continue to improve on this.



Scotland has access to world leading information – the UK Climate Projections - about how our climate is likely to change over this century.

<http://ukclimateprojections.defra.gov.uk/>

The key long-term climate change trends for Scotland are:

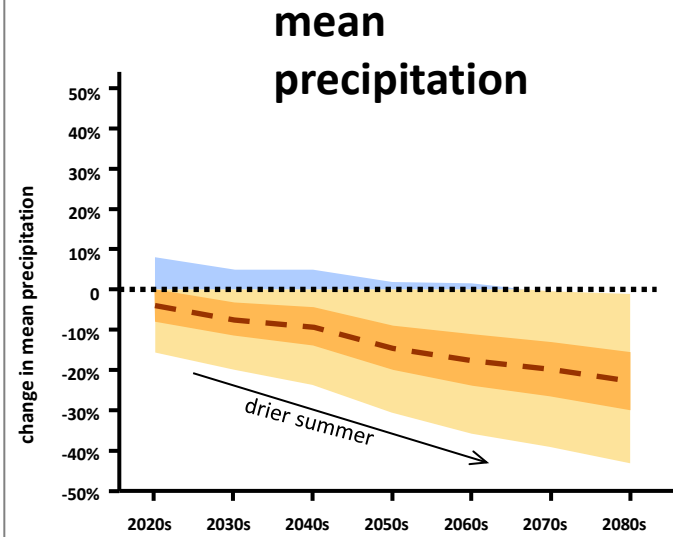
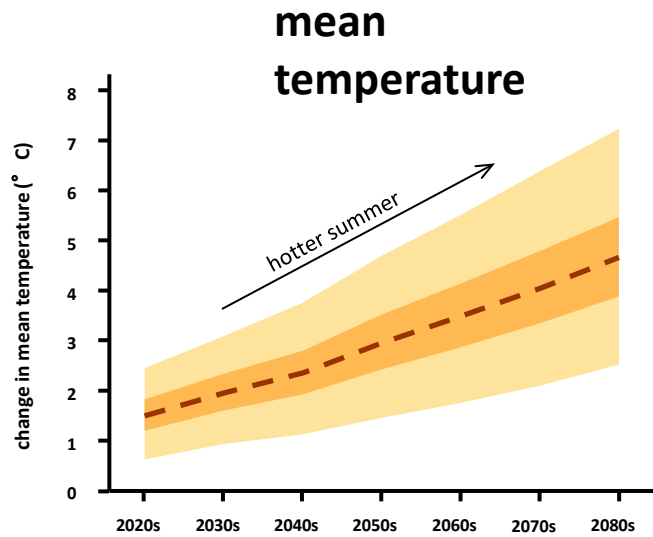
- Weather will remain variable, it may become more variable
- Typical summer is hotter and drier
- Typical winter / autumn is milder and wetter

We can also expect to see:

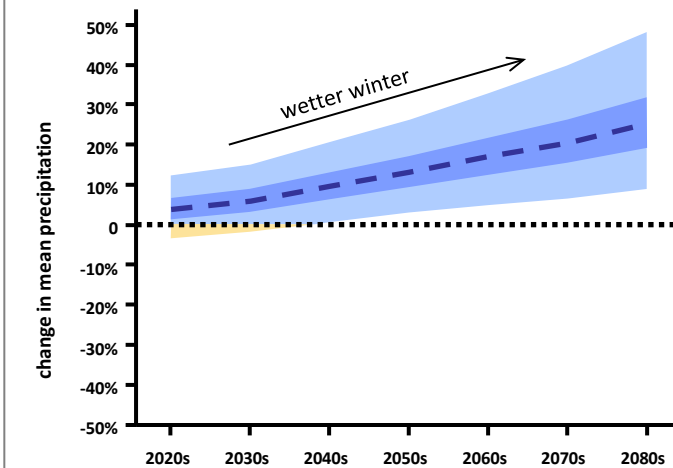
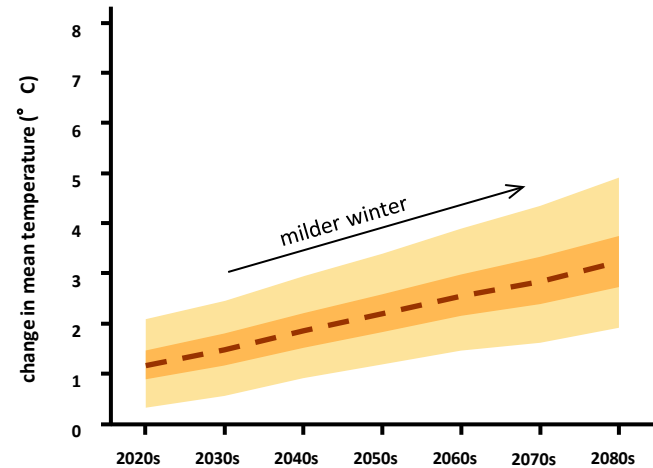
- Increase in summer heat waves, extreme temperatures and drought
- Increased frequency and intensity of extreme precipitation events
- Reduced occurrence of frost and snowfall
- Sea level rise

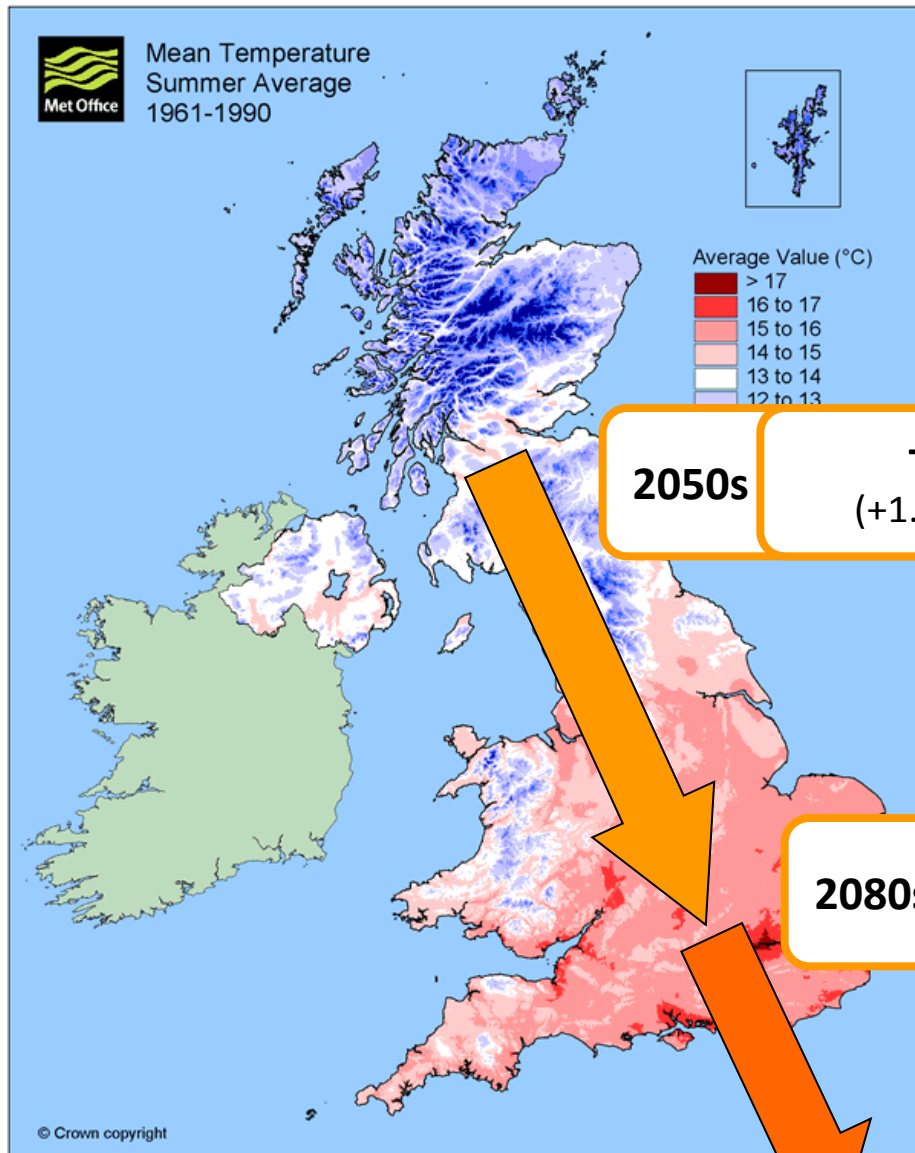
Forth River Basin High Emissions (A1FI)

summer



winter





What difference do a few degrees make?

London was **3.0°C** warmer than Glasgow
(in baseline 1961-1990)

2050s

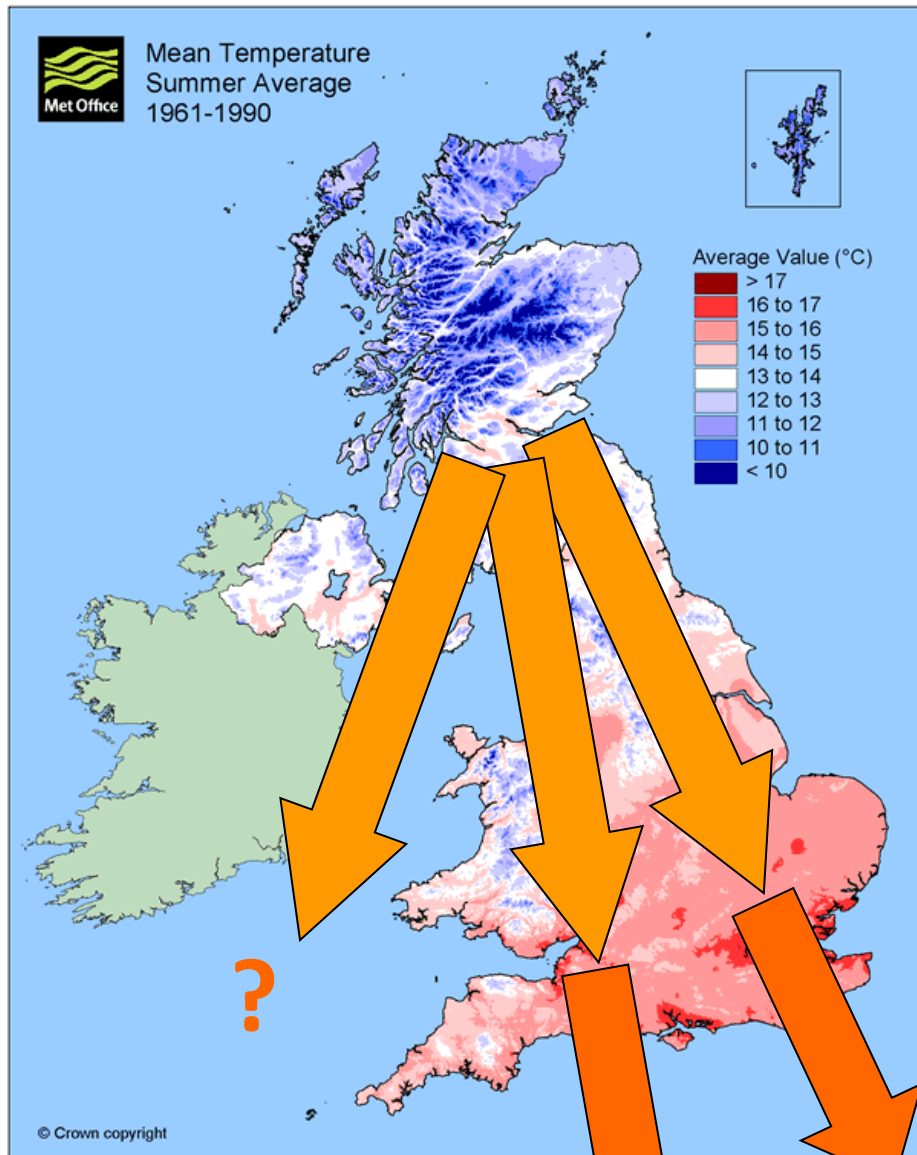
+2.8°C
(+1.3 to 4.4°C)

So summer temperatures may be more similar to those in south of England by the 2050s...

2080s

+4.3°C
(+2.4 to 6.8°C)

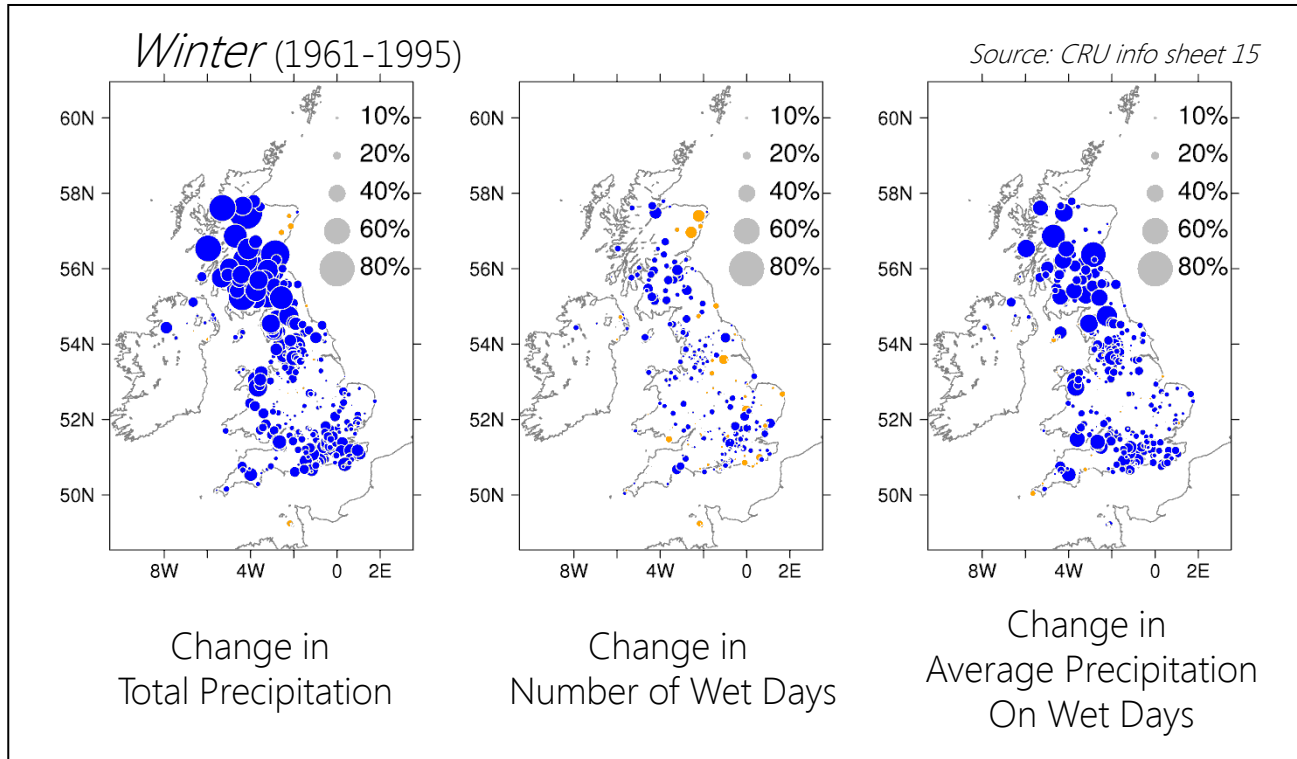
... and potentially more like those currently experienced in Southern Europe (>4°C)



A word of caution: finding an analogous climate location isn't simple – we'd need to consider rainfall and many other climate variables.



Rainfall has increased over the last 50 years... This increase is mostly due to heavier rainfall on wet days (rather than more wet days)

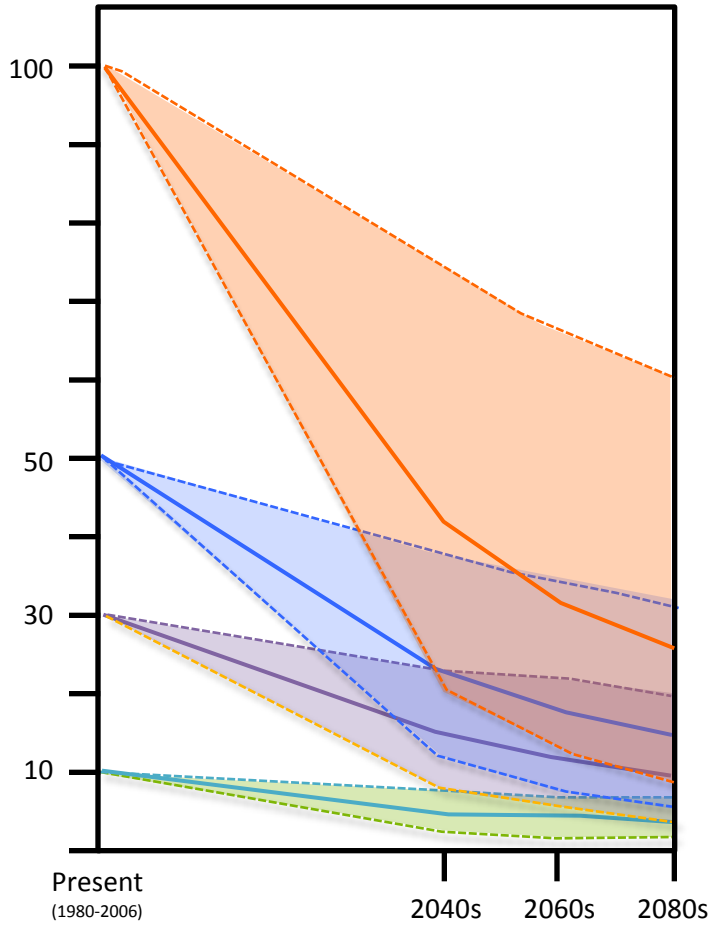


In London extreme rainfall events occurred once every 30 years before 1960 - and once every 6 years since then...

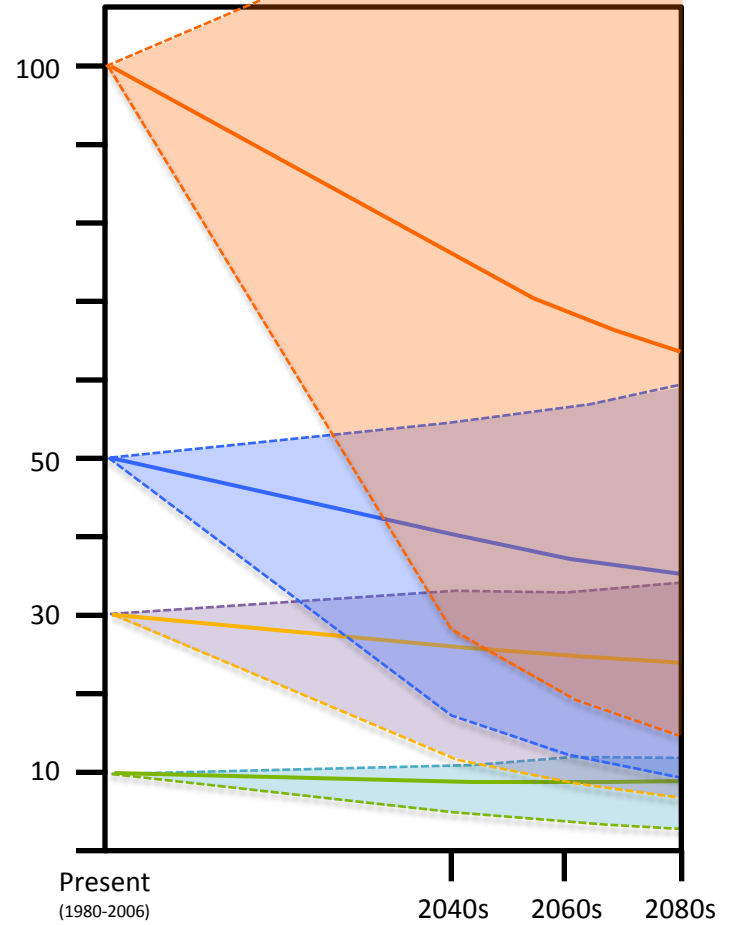
(2010)

source: Lloyds

Newcastle-upon-Tyne
Winter (DJF)



Newcastle-upon-Tyne
Summer (JJA)



Sanderson (2010) Changes in the frequency of extreme rainfall events for selected towns and cities

Adaptation Scotland is a programme funded by the Scottish Government and delivered by Sniffer





Are we loading the 'climate dice' for extreme weather events?



The key long-term climate change trends for Scotland are:

- Weather will remain variable, it may become more variable
- Typical summer is hotter and drier
- Typical winter / autumn is milder and wetter

We can also expect to see:

- Increase in summer heat waves, extreme temperatures and drought
- Increased frequency and intensity of extreme precipitation events
- Reduced occurrence of frost and snowfall
- Sea level rise

What impact will it have?

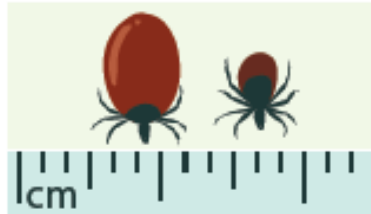


What does this mean for Scotland?

from Scottish Climate Change Adaptation Programme (2014)

The occurrence of pests and disease

As our climate changes, it will create new conditions that may allow existing pests and disease to spread and new threats to become established in Scotland. This may impact on the health of our people, animals, plants and ecosystems if risks are not properly managed.



The productivity of our agriculture and forests

A warming climate has the potential to improve growing conditions in Scotland and increase the productivity of our agriculture and forestry. However, climate change will also pose a number of threats, from more variable and extreme weather to the spread of pests and diseases, which may limit this potential.



The occurrence of pests and disease

As our climate changes, it will create new conditions that may allow existing pests and disease to spread and new threats to become established in Scotland. This may impact on the health of our people, animals, plants and ecosystems if risks are not properly managed.



The security of our food supply

Climate change may have an impact on global food production. Although Scotland may be able to grow more food, this will not offset the impact global disruption has on us. The effects of increased volatility in the global commodity market due to exposure to extreme climatic events has an impact on supply and cost of food.



The availability and quality of water

As our climate warms and rainfall patterns change, there may be increased competition for water between households, agriculture, industry and the needs of the natural environment. Summer droughts may become more frequent and more severe causing problems for water quality and supply.



The increased risk of flooding

Flooding can already have a devastating effect on those affected. With climate change likely to alter rainfall patterns and bring more heavy downpours, we expect flood risk to increase in the future. This could impact on properties and infrastructure – with serious consequences for our people, heritage, businesses and communities.



The change at our coast

Sea level rise is already having a widespread impact on parts of Scotland's coast. With this set to accelerate over the coming decades, we can expect to see more coastal flooding, erosion and coastline retreat – with consequences for our coastal communities and supporting infrastructure.



The security and efficiency of our energy supply

Climate change may influence Scotland's capacity to generate weather-dependent renewable energy. For example, varying water availability will affect hydro generation schemes. Climate change can also impact power distribution, with impacts ranging from damage caused by extreme weather events, to reduced transmission efficiency occurring as a result of temperature fluctuations. Impacts on global energy markets may also affect energy supplies in Scotland and consequently our overall energy security.



The performance of our buildings

The built environment is made up of existing and newly constructed buildings. Climate change will have an impact on the design, construction, management and use of these buildings and surroundings including the man-made surroundings such as green and blue spaces. Our buildings are largely constructed to cope with the extremes of weather conditions found across Scotland, but most of them will need to continue functioning throughout this century under a significantly different climate. Whether retrofitting existing or building new, it is likely that there will be issues with water management (in flood and drought), weather resistance and overheating.



The health and wellbeing of our people

A warming climate may provide more opportunity to be outdoors and enjoy a healthy and active lifestyle, while reducing mortality in winter. However, it could affect patterns of disease and other health issues. Climate change and associated extreme weather may disrupt the lives of individuals and communities, limiting access to vital services and impacting on people's physical and mental health.



Our cultural heritage and Identity

The changing climate is already altering our unique Scottish landscape and threatening our historic environment through coastal erosion, flooding and wetter warmer conditions. The increased pace of climate change presents challenges to all those involved in the care, protection and promotion of the historic environment.



The health of our marine environment

Our marine ecosystems – from plankton through to fish, mammals and seabirds – are already being affected by climate change alongside other pressures, particularly fishing. Changes will continue, with rising temperatures likely to change species and their distributions. The changes will present both threats and opportunities to our commercial fisheries and aquaculture.



The resilience of our businesses

Climate change and associated extreme weather may disrupt transport, energy and communication networks in Scotland and around the world. This could impact on markets, affect supply chains and raise insurance costs.



The quality of our soils

We rely on soils to sustain biodiversity, support agriculture and forestry, regulate the water cycle, have historic environmental and archaeological value, and store carbon. Soils and vegetation may be altered by changes to rainfall patterns and increased temperatures – as well as the way we use the land.



The health of our natural environment

Climate change may affect the delicate balance of Scotland's ecosystems and transform Scotland's habitats and biodiversity, adding to existing pressures. Some distinctive Scottish species may struggle and could be lost, invasive non-native species may thrive, while a degraded environment may not be able to sustain productive land or water supply.



Infrastructure – Network Connectivity and Interdependencies

Our energy, transport, water, and ICT networks support services are vital to our health and wellbeing and economy prosperity. The effect of climate change on these infrastructure systems will be varied. They are likely to be impacted by an increase in disruptive events such as flooding, landslides, drought, and heatwaves. Our infrastructure is closely inter-linked and failure in any area can lead to wider disruption across these networks.





How will climate change affect Scotland's public sector?

Rising seas threaten Scotland's coastal communities and infrastructure.

Sea level rise is already having a widespread impact on Scotland's coast. With this set to accelerate over the coming decades, we can expect more coastal flooding, erosion and coastline retreat with consequences for coastal communities and supporting infrastructure. Coastal management which addresses these impacts will be necessary to reduce risk.

Climate change will affect the health and wellbeing of individuals and communities.

A warmer climate may provide opportunities to enjoy a healthy, active outdoor lifestyle as well as reducing winter mortality. However, more disruptive weather events will have consequences for people's physical and mental health. Changes to climate could also alter patterns of disease and exacerbate respiratory illness.

The natural environment has a critical role in responding to the challenges of climate change.

Climate change will transform Scotland's habitats and biodiversity, adding to existing pressures. Some Scottish species could be lost and invasive species (including pests and disease) may thrive. We need action to protect the ecosystem services which support the economy and contribute to quality of life in Scotland, for example through use of green networks with space for natural flood management and wildlife corridors.

Buildings need to be fit-for-purpose in a future climate.

Building performance will be challenged by a changing climate. Buildings will need to cope with overheating, intense rainfall events and possible changes in wind and storm patterns. This will require appropriate planning, design and building standards, but also retrofitting existing building stock.

Effective land use and development planning has a critical role in adapting to climate change.

Planning can help ensure that new and existing developments, infrastructure and communities are resilient to climate change. Resilient features include using sustainable urban drainage systems, green infrastructure and avoiding development in areas vulnerable to flood risk, coastal erosion and rising sea levels.

Demands on emergency and rescue services will change.

In a changing climate emergency services may need to respond to an increased number of floods, landslides and wildfires. There may also be changes in social and recreational behaviour that present new challenges to emergency and rescue services. Emergency services need to consider how these changes may impact procedures, premises, staff and equipment.

The productivity of our agriculture and forests will change.

A warming climate has the potential to improve growing conditions and increase the productivity of agriculture and forestry. However, changes in the natural environment may contribute to degraded ecosystems less able to sustain productive agriculture and forestry. More variable and extreme weather may limit the potential for improved conditions, making effective land and water management more important.

Climate change may damage and disrupt national infrastructure

The potential for increased flooding, landslides, drought, heat waves and rising sea levels – particularly when combined with storms – may damage national infrastructure. Disruption to energy, transport, water and ICT networks could affect business continuity. Failure of key infrastructure hubs in one area can affect large parts of the network. Organisations need to consider how this may affect delivery of vital services.



How can we respond?



Managing risk.


Risk assessment examples - current and future risk

Asset Type	Asset	Consequence	2014			2030			2050			2070		
			Substrate	Coverage	Risk Rating	Substrate	Coverage	Risk Rating	Substrate	Coverage	Risk Rating	Substrate	Coverage	Risk Rating
Service (water asset)	Loss of buildings, personal property and businesses	Damage to essential assets and buildings (Damage to essential property and businesses)	1	1	High	1	1	High	1	1	High	1	1	High
Physical Asset (water asset)	Water storage (water systems)	Loss of water supply to agriculture and other industrial/property. Increased opportunity for increased forest estate with high pressure to invest in forest water supplies through water abstraction	1	1	High	1	1	High	1	1	High	1	1	High
Physical Asset (water asset)	Forest (trees)	Enhance through loss of the land and greater making these "leader" ecosystems to higher levels which will be the speed and spread of forest trees which are pivotal to the antiquity.	1	1	High	1	1	High	1	1	High	1	1	High
Physical Asset (water asset)	Long term (water asset)	Increased sediment and other sediment related loss assets, increased which leads to sandbars in the deep regions.	1	1	High	1	1	High	1	1	High	1	1	High

THE ADAPTATION GAP

Five steps to managing your climate risks

A Guide for Public Bodies in Scotland



Supporting compliance with the Climate Change (Scotland) Act 2009
Public Bodies Climate Change Duties

The Five Steps

- 1 Define the challenge**
 - 1.1 Identify aims and objectives
 - 1.2 Build the business case
 - 1.3 Establish governance of your adaptation arrangements
 - 1.4 Define your adaptation risk and embed on your Corporate Risk Register

Milestone 1: Briefing paper submitted to Corporate Management Team
- 2 Assess climate threats and opportunities**
 - 2.1 Understand UKCP09 key messages
 - 2.2 Issue screening questionnaire
 - 2.3 Full day workshop with relevant service managers
 - Presentation 1: introduction to climate change impacts and adaptation
 - Exercise 1: assessing the consequences of severe future weather
 - Presentation 2: understanding future climate change
 - Exercise 2: assessing future climate threats and opportunities for critical functions (impact assessment)

Milestone 2: Impact assessments for selected services
- 3 Assess climate risks and identify actions**
 - 3.1 Climate change risk assessment for priority threats and opportunities
 - 3.2 Identify and prioritise actions
 - 3.3 Implementation plans

Milestone 3: Risk assessments and action plans for selected services
- 4 Report and implement**
 - 4.1 Compile key messages from steps 1-3
 - 4.2 Ongoing implementation

Milestone 4: Adaptation arrangements report
- 5 Monitor and review**
 - 5.1 Monitor and review
 - 5.2 Communicate progress
 - 5.3 Identify next steps

Milestone 5: Regular monitoring and review process



Creating a vision



The groups Vision for 2050 was illustrated visually on the map with a key and included:

- Urban drainage and SUDS
- O&M maintenance
- Building maintenance / retrofit little new development, so emphasis should be on existing buildings
- New and expanded reservoirs for summer irrigation
- Enhanced drainage for extreme rainfall events and increased winter precipitation
- Managed retreat of coastal fringe
- Green networks and buffer strips
- (Natural / built heritage / setting policies required to protect identity of the area.
- Rational cycle network increased tourism
- Protection of the railway and a new station low carbon travel
- Potential development with zero carbon generating technology potential for biofuel crops and associated industrial infrastructure (located on former airfield?)
- Renewable energy / solar farms
- Building maintenance to increase resilience
- Reuse of buildings in the town and restricted infill development new development restricted to historic settlements with existing infrastructure (drainage, sewerage etc.) and often on highest ground.



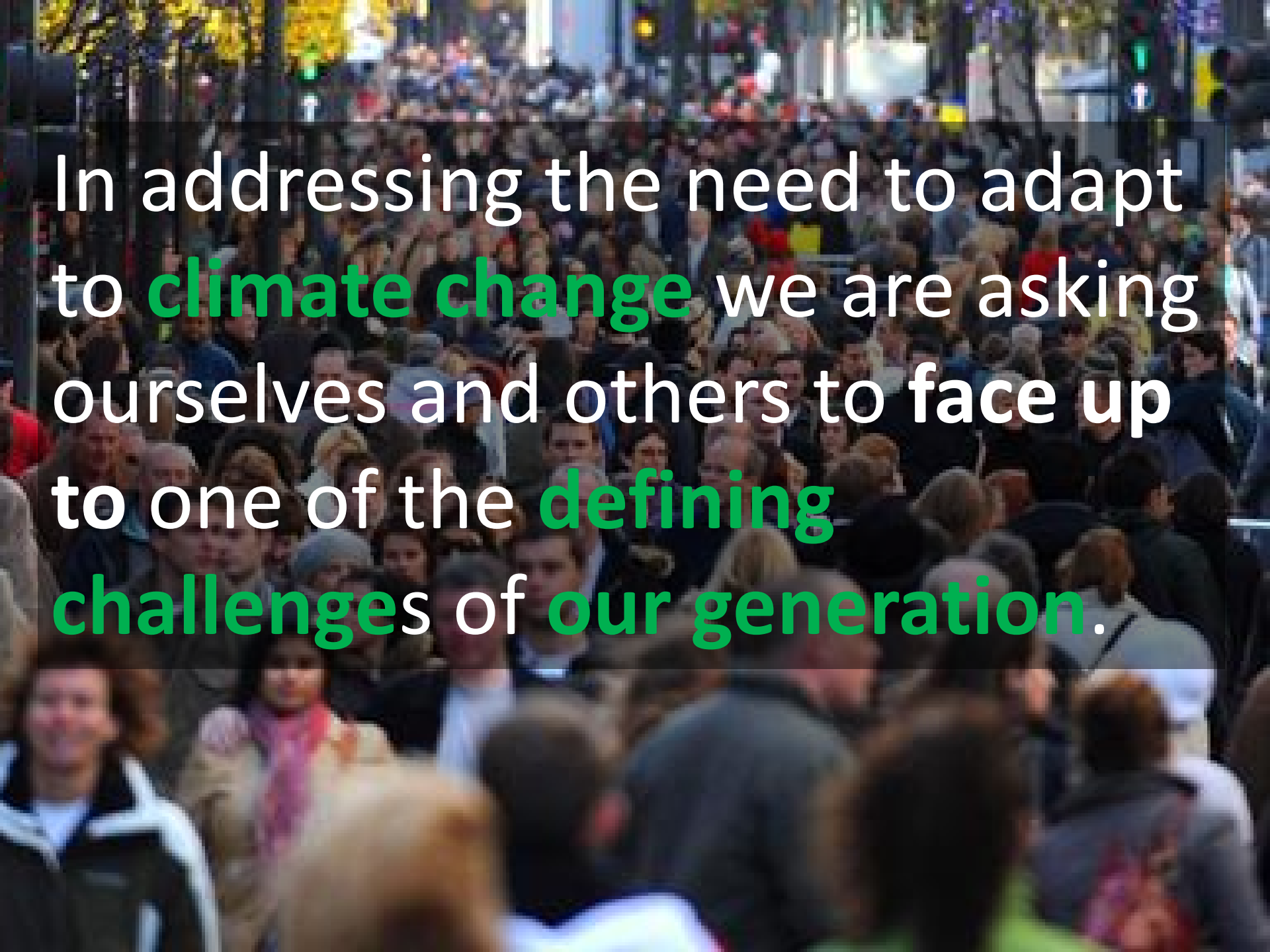
Identifying and prioritising actions





Transformation and Leadership

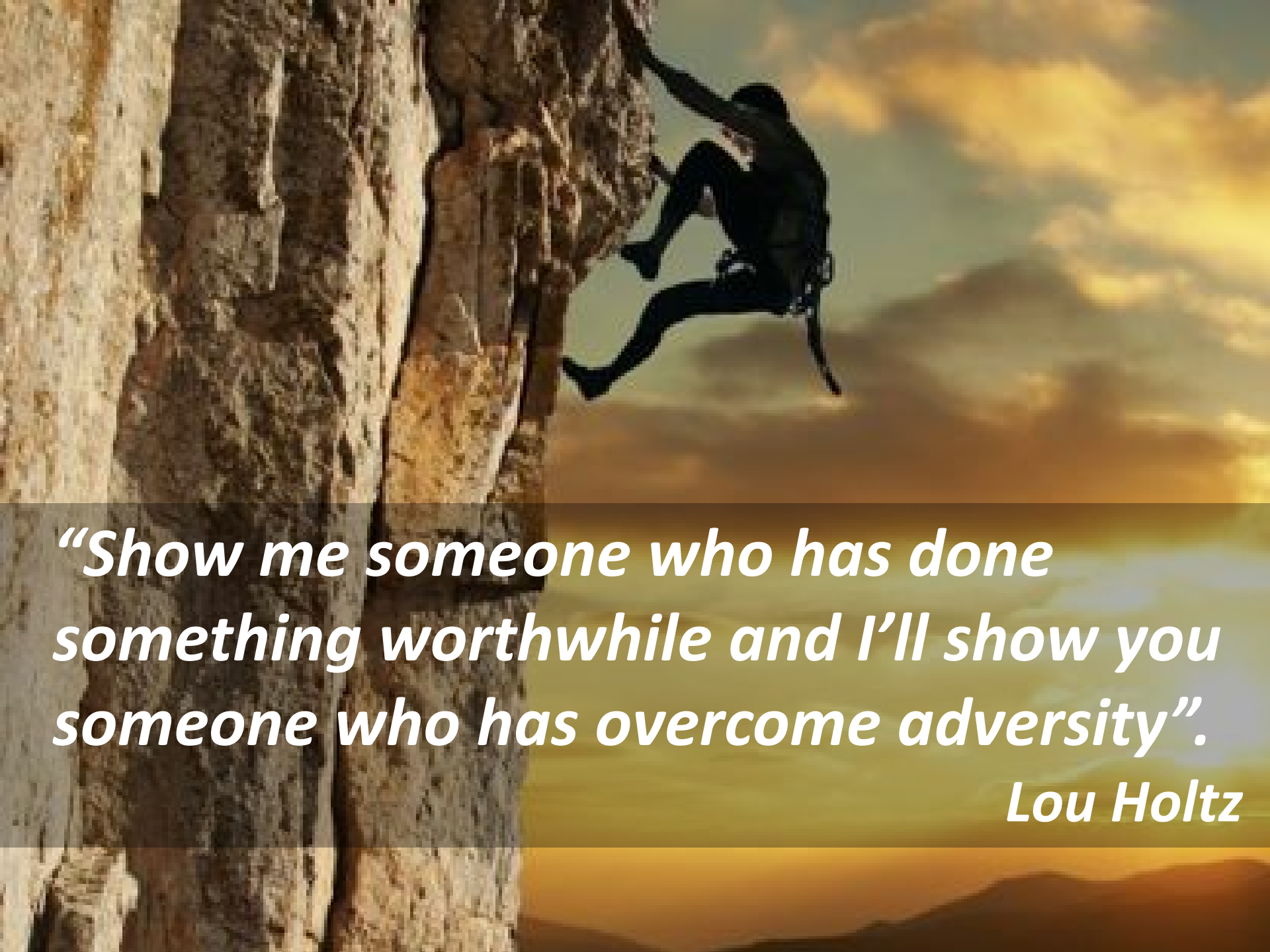
Adaptation
Scotland
supporting **climate change** resilience

A large, diverse crowd of people is shown at night, filling the frame. The background is filled with city lights and buildings, suggesting a busy urban environment. The text is overlaid on the image, with the words "climate change", "defining", and "challenges of our generation" highlighted in green.

In addressing the need to adapt to **climate change** we are asking ourselves and others to **face up** to one of the **defining challenges** of **our generation**.

A close-up, high-contrast photograph of a person's face, focusing on the eyes and nose. The person has dark, intense eyes and a slight, determined smile. The lighting is warm and dramatic, highlighting the texture of the skin and the intensity of the gaze. A semi-transparent dark grey box is overlaid on the lower half of the face, containing white text.

There are lots of people who
will say that it's too difficult.



“Show me someone who has done something worthwhile and I’ll show you someone who has overcome adversity”.

Lou Holtz



Accepting change and taking action to build resilience will require a fundamental shift in attitudes and decision making.

Need to develop **strategies** and **approaches**
to **overcome** the **barriers** that we face.

*Technical, social, political, legal,
technological, economic, environmental.*





“The research and experience of others is the best place to look when you are looking for your answer”

Garry Keller



Communicating adaptation

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Aims

- Reflect on our experiences (good and bad) of communicating adaptation
- Share what has worked and what hasn't worked
- Develop and deliver an elevator pitch for a defined audience; understand where different audiences are coming from
- Capture combined experience to share with others

“If it doesn’t provide added value, it’s not worth the investment”

“We face more urgent priorities like keeping schools and hospitals open”

“We can worry about it tomorrow”

“It’s not my responsibility”

“We don’t have the time or money”

...or they just don’t believe in climate change!



Understand your audience!

“It always comes back to the audience you’re trying to reach, and the way they think about their problems and desires.”

Discussion – 15 minutes

Think of situations when you have tried to communicate with others about adaptation:

- What was the situation? Who were you communicating with?
- What were you trying to say?
- What response did you get?
- Why do you think you got this response?
- What can you share with each other about what works and what doesn't work?
- What should you do when you can't get through?

15 minutes

Elevator pitch challenge – 20 mins

Develop a 3 minute elevator pitch (or outline!) which aims to get adaptation on your audience's agenda.

- What are you asking for? What do you want to say?
- How can you communicate that adaptation is an opportunity to innovate and improve efficiency?
- How can it help solve your audience's problems – what are the big hits?

After **20 minutes**, you will deliver your pitch to another group, obtain feedback and have the chance to discuss.





Mapping your challenges; finding your allies

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Mapping your challenges - Instructions

Spend ten minutes critically reflecting on your progress so far under the following headings:

1. Defining your challenges and building your business case
2. Assessing climate threats and opportunities
3. Assessing climate risks and identifying actions
4. Reporting and implementation
5. Monitoring and review

Find your allies

- It is likely that many of you share the same problems. Can you find a solution together?
- If you see something that you have encountered and can provide help, please share your experiences with the rest of the group.



Collaboration

Adaptation Scotland – Science Officer

Dr Joseph Hagg

Collaboration

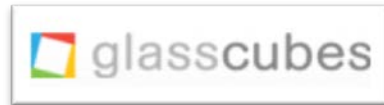
It is not just a series of workshops, everyone will be working on adaptation over the coming months.

Sharing and working together is at the heart of this project.

You need to find ways to do this – we can help – but up to you to make most of this opportunity.



Online collaboration?



The screenshot shows a web interface for a workspace titled "Adaptation Learning Exchange" under the "Adaptation Scotland" project. The interface includes a navigation bar with "Dashboard" and "Workspaces" tabs, and a search bar. Below the navigation, there are tabs for "Summary", "Documents", "Tasks", "Discussion", "Calendar & Calls", and "People". The main content area features a large banner for the "Adaptation Learning Exchange" project, followed by a "Workspace Announcements" section with a "Welcome!" message. A "This Week" calendar view shows a workshop on Wednesday, 25th. The right sidebar contains notification settings, a "Tools" section with "Add Announcement", "Add Poll", and "View old announcements", and a "Members" section listing Anna, Joseph, and Karen.

sniffer
by the Scottish Government

Joseph Hagg Admin Area Sign Out New updates Help Feedback More glasscubes

Dashboard Workspaces

Summary Documents Tasks Discussion Calendar & Calls People History

Adaptation Scotland Adaptation Learning Exchange Email to Workspace Settings

Adaptation Learning Exchange

An Adaptation Scotland Project

Adaptation Learning Exchange (ALE) will run from June to December 2014. It will support ten public bodies to overcome common adaptation planning challenges as part of a peer support group. The lessons from ALE will be shared with public bodies across Scotland and will inform future adaptation planning in Scotland and beyond.

Workspace Announcements

Welcome! [Hide this](#)

Added 3 days ago by Joseph Hagg

This is our online collaborative space - where you can share documents, start discussions and co- [More](#)

This Week

Mon 23	Tue 24	Wed 25	Thu 26	Fri 27	Sat 28	Sun 29
		(09:45 ALE Workshop)				

Activity Feed

Share or announce something

What's on your mind? [Share](#)

Members

Add or Remove members

- Anna Active 3 hours ago
- Joseph Online
- Karen Active 5 days ago

Your thoughts?



Final session on **actions** – who might be a **collaborator**?



Actions to take away





MIND THE GAP



**Adaptation
Scotland**
supporting climate change resilience

Adaptation Scotland is a programme funded by the Scottish Government and delivered by Sniffer

Do one thing

Identify the **one thing** that you are going to go away and do before the next meeting.

Research shows that we are much (76.7%) more likely to do actions that we write down and are accountable to others for (makes sense really!!!).



Please write down one thing (and only one) that you are going to do before the next workshop.





Adaptation Scotland is a programme funded by the
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Adaptation Scotland

supporting **climate change** resilience

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