

Adaptation Scotland

supporting climate change resilience

Transformational Adaptation Wishful thinking or the secret to success?

Anna Beswick | Programme Manager

Transformations Conference, Dundee | 29 August 2017

The Adaptation Scotland programme is funded by the Scottish Government and delivered by sustainability charity Sniffer.



Adaptation
Scotland
supporting climate change resilience

Enabling organisations,
businesses and communities
to adapt


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





Awareness Raising

Purpose: To raise awareness of adaptation across a wide range of organisations through adaptation 'events'.



Adaptation Learning Exchange for Organisations



The Exchange

Purpose: Coordination of the learning exchange including communication, Members Updates and organising of ALE Exchange Events.




Accelerators

Purpose: To build the capacity of organisations through a targeted professional learning programme.



Task Groups

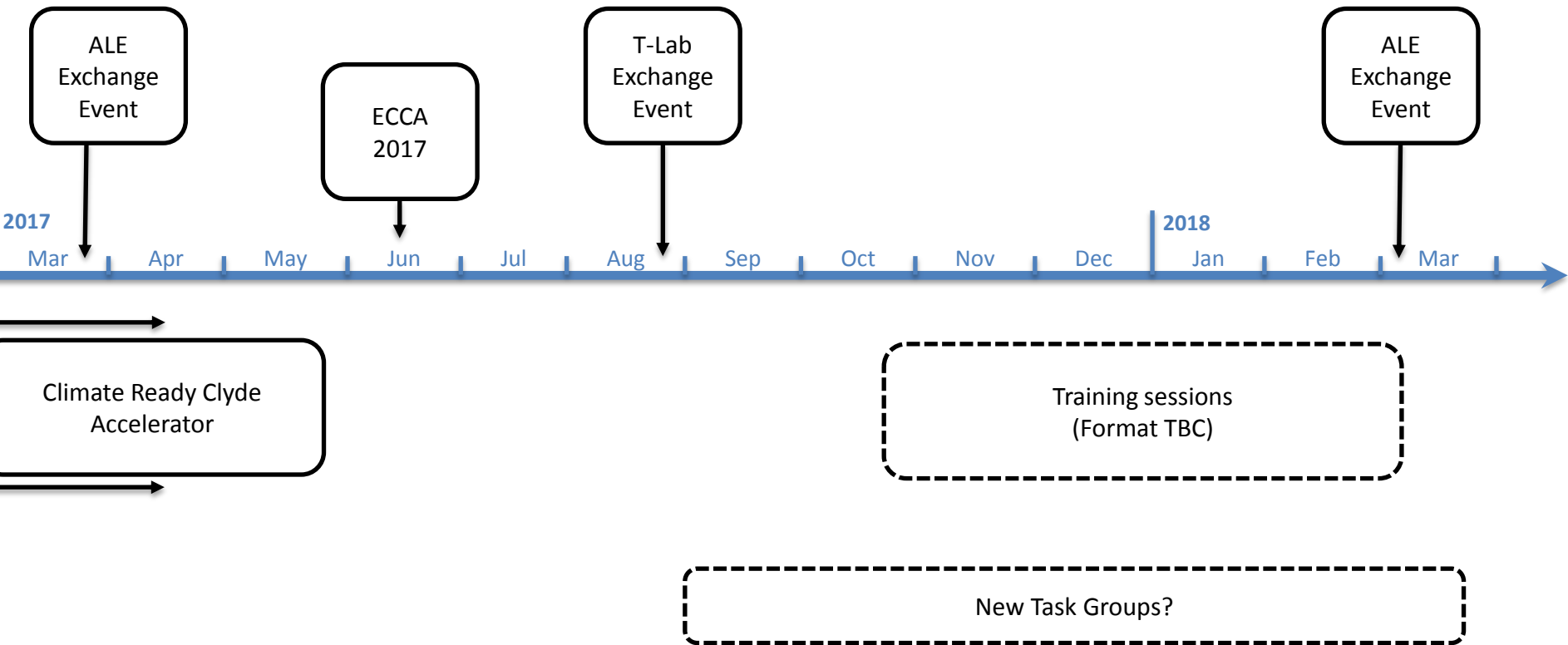
Purpose: To enable collaborative working that provides peer support and/or deliver projects through clearly defined task groups



Place-Based Partnerships

Purpose: Develop regional / location-focussed visions, adaptation strategies and action plans.

Adaptation Learning Exchange Update



T Lab: Programme

10:20 – 10:50	Introduction to transformation
10:50 – 11:20	Edinburgh – overview
11:20 – 11:30	Break
11:30 – 12:30	Group work 1
12:30 – 13:30	Lunch
13:30 – 15:00	Group work 2
15:00 – 15:15	Break
15:15 – 16:00	Challenges and opportunities
16:00 – 16:20	Feedback and close

- Increase understanding of the concept of transformation
- Explore opportunities for applying transformation by building on work started in Edinburgh
- Reflect on the challenges and opportunities

Introduction to transformation

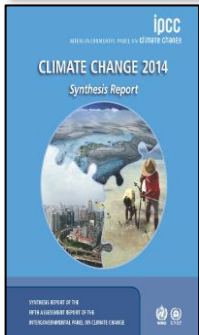
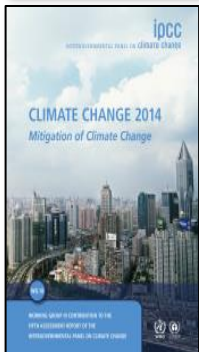
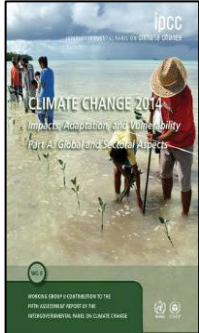
T2017 • T-Lab on Transformational adaptation • Dundee

Introduction to Transformation

Susi Moser, Ph.D.

Susanne Moser Research & Consulting

IPCC in 2013-14 (AR5)

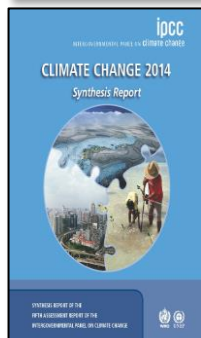
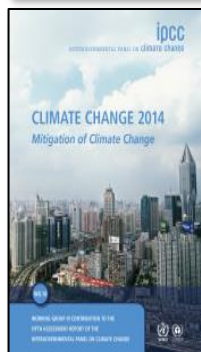
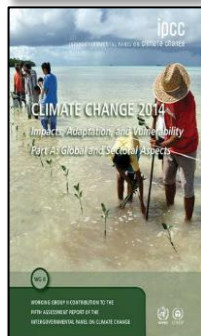
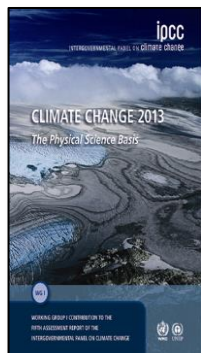


- Warming of the climate system is **unequivocal**
- Since the 1950s, many of the observed **changes are unprecedented** over decades to millennia
- Recent climate changes have had **widespread impacts**

IPCC in 2013-14 (AR5)

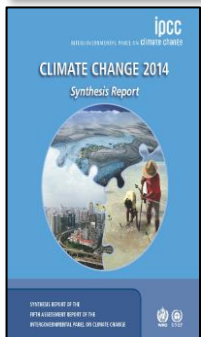
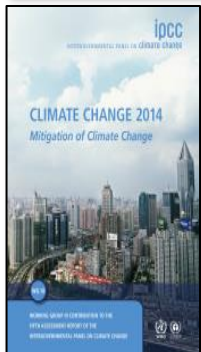
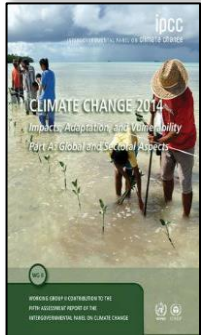
- Recent anthropogenic emissions of GHGs are the **highest in history**
- Atmospheric concentrations of CO₂, CH₄ and N₂O are **unprecedented in at least the last 800,000 years**

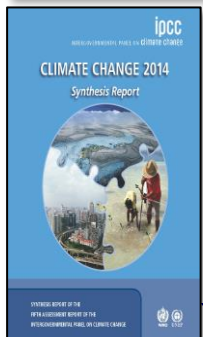
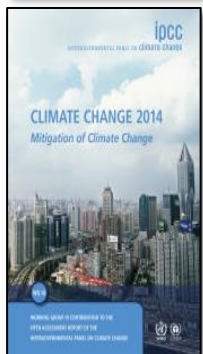
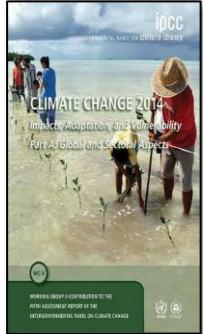
- Homo sapiens first appeared 200,000 years ago
- 10,000 years ago, at the beginning of the Holocene, *global* human population was ca. 5 million (= Scotland)



IPCC in 2013-14 (AR5)

- Likelihood of **severe, pervasive and irreversible impacts** for people and ecosystems is increasing





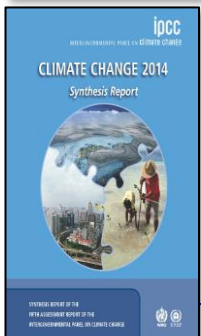
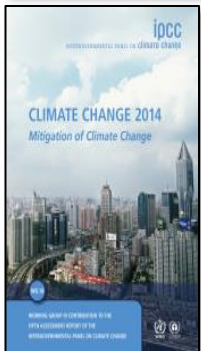
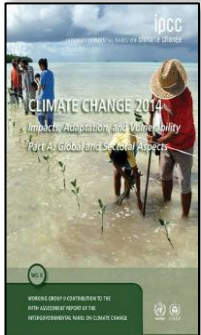
If We Do Nothing Else

- **Without additional efforts to reduce GHG emissions beyond those in place today ... global mean surface temperature increases in 2100 by**
3.7°-4.8°C [6.7-8.6 °F] compared to pre-industrial levels
Full range: 2.5-7.8°C [4.5-14 °F] (high confidence)

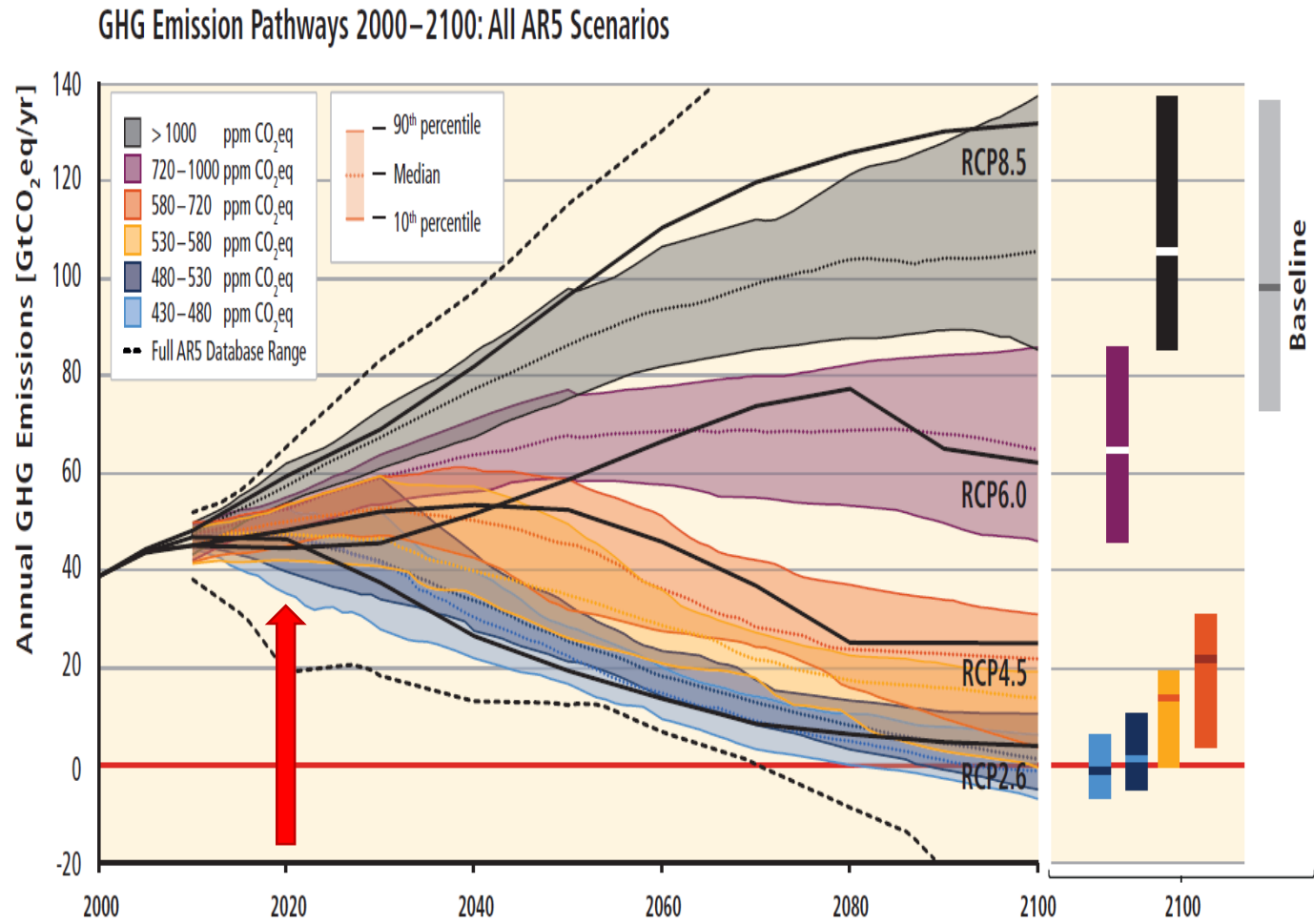


The Size of the Challenge

- Stabilizing the climate would require **substantial and sustained reductions in GHG emissions**
- Mitigation scenarios in which it is **likely** [$>66\%$ chance] that the temperature change ...can be kept to less than 2°C relative to pre-industrial levels are characterized by atmospheric concentrations in 2100 of about **450 ppm CO_2eq (high confidence)**
 - By 2050: 40-70% GHG emission reduction globally
 - By 2100: near 0 (or below)

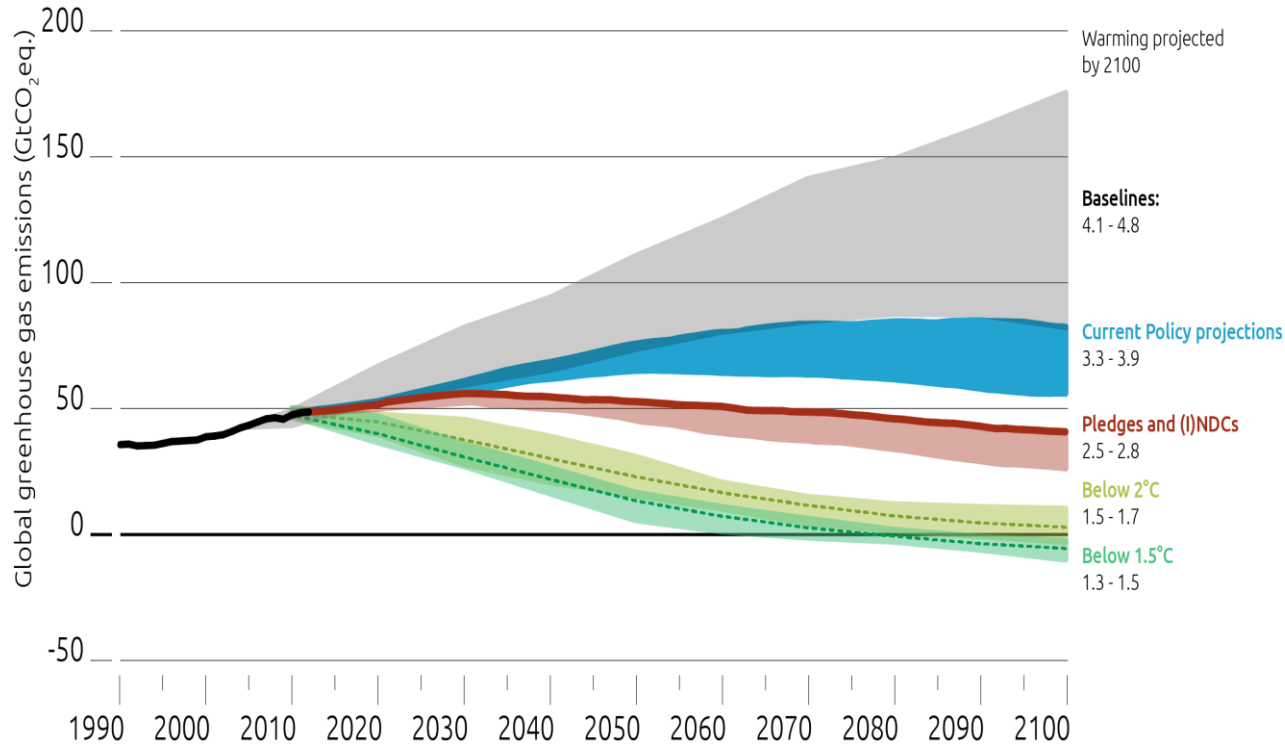


No Time To Lose



Source: IPCC 2014

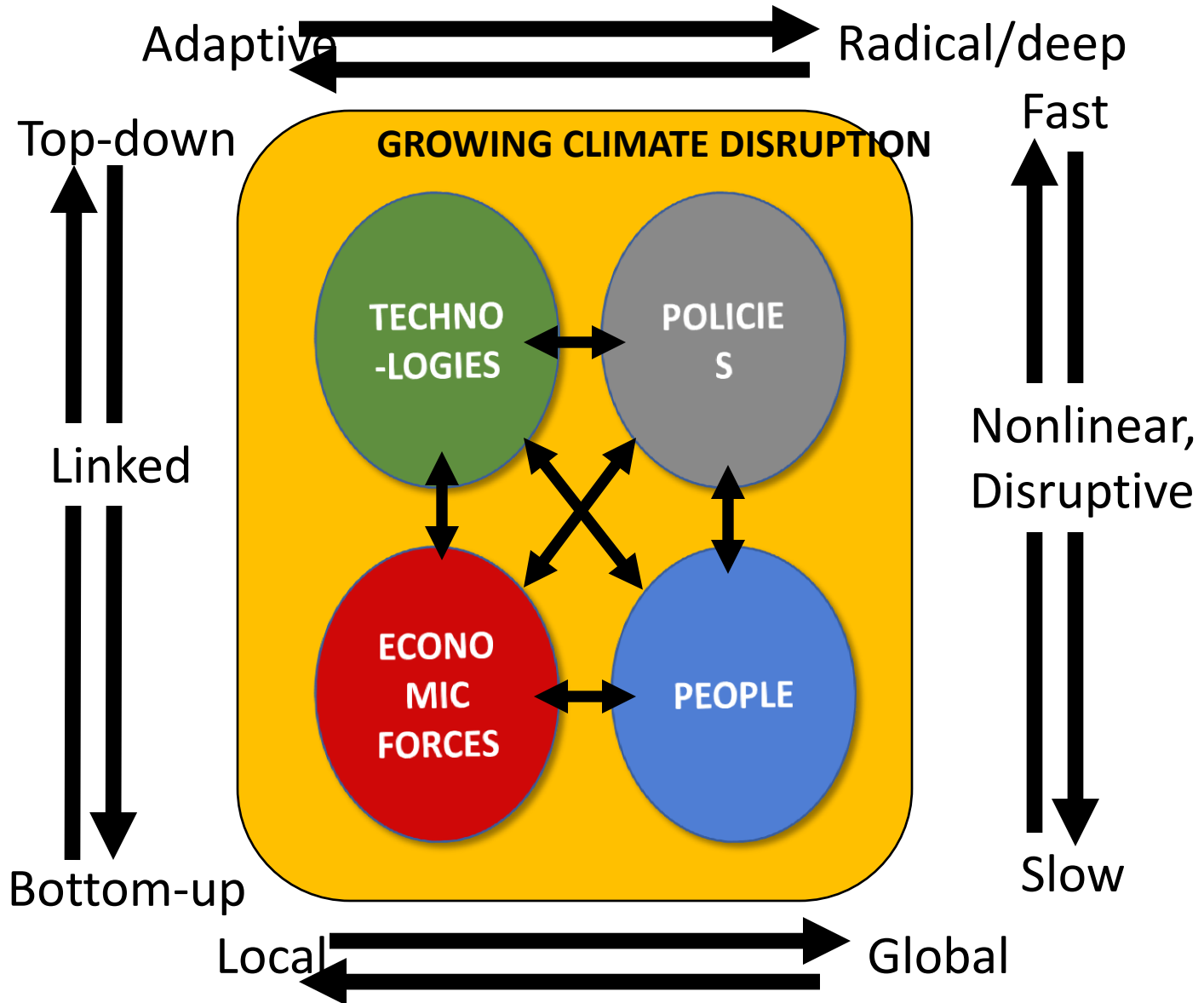
What Are Countries Pledging to Do



Historical emissions, incl. LULUCF
 Current policy projections
 Reference*
 Pledges and (I)NDCs
 2°C consistent median and range**
 1.5°C consistent median and range***
 © www.climateactiontracker.org/
 Climate Analytics/Ecofys/
 NewClimate

* 5%-95% percentile of AR5 WGIII scenarios in concentration category 7, containing 64% of the baseline scenarios assessed by the IPCC
 ** Greater than 66% chance of staying within 2°C in 2100. Median and 10th to 90th percentile range. Pathway range excludes delayed action scenarios and any that deviate more than 5% from historic emissions in 2010.
 *** Greater than or equal to 50% chance of staying below 1.5°C in 2100. Median and 10th to 90th percentile range. Pathway range excludes delayed action scenarios and any that deviate more than 5% from historic emissions in 2010.

Shaping Our Responses



Adaptation vs. Transformation?

IPCC's definition:

Adaptation is an 'adjustment in natural or human system in response to actual or expected climatic stimuli of their effects, which moderates harms or exploits beneficial opportunities.'

Transformation is 'a change in the fundamental attributes of natural and human systems.'

Adaptation

- a change *of* something *to* something, either in reaction or in anticipation of new conditions
- adaptation is *responsive* to change

What Does Adaptation Involve?

Adger (2005):

Adaptation by way of:

- altering exposure
- decreasing sensitivity and/or
- increasing adaptive capacity/resilience to cope with change

Reducing vulnerability > Reducing impacts

Through relatively small adjustments...

... while maintaining the integrity and essence of a current system



Transformation

- a change *from* something *into* something that is physically or qualitatively different
- transformation is *generative* of change

Transformation

- Slowly and incremental
 - In many small steps, until a threshold is reached and it seems “suddenly, everything is different”
- Suddenly and instantaneously
 - As a result of a major event or shift that fundamentally alters how a system functions



- Unintentional

- Not the result of concerted efforts, but the cumulative impact of multiple, often unrelated events and efforts

- Deliberate

- The result of planning, facilitation and active interventions aimed at an intended (but not necessarily “good”) goal



RELIEF

REFORM

RECOVERY

**MANY OF HIS PROGRAMS
COMBINED ELEMENTS OF ALL
THREE**



Transformational Adaptation

- Actions that are
 - Well known but implemented at much larger scale
 - Fundamentally different from anything done previously/novel to the place or system
 - Changing places and shift location
- Processes that fundamentally alter the biophysical, economic and social constituents of a particular system from one location, function or form to another.

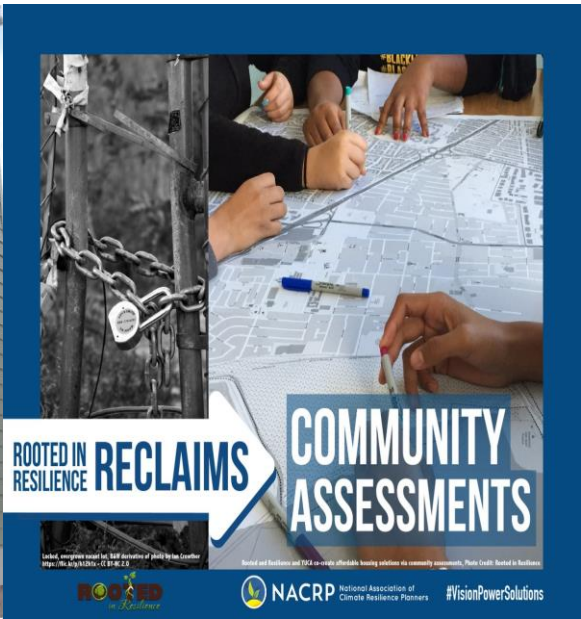
See review in: Raphael Danglade (2014), <https://climate-exchange.org/>



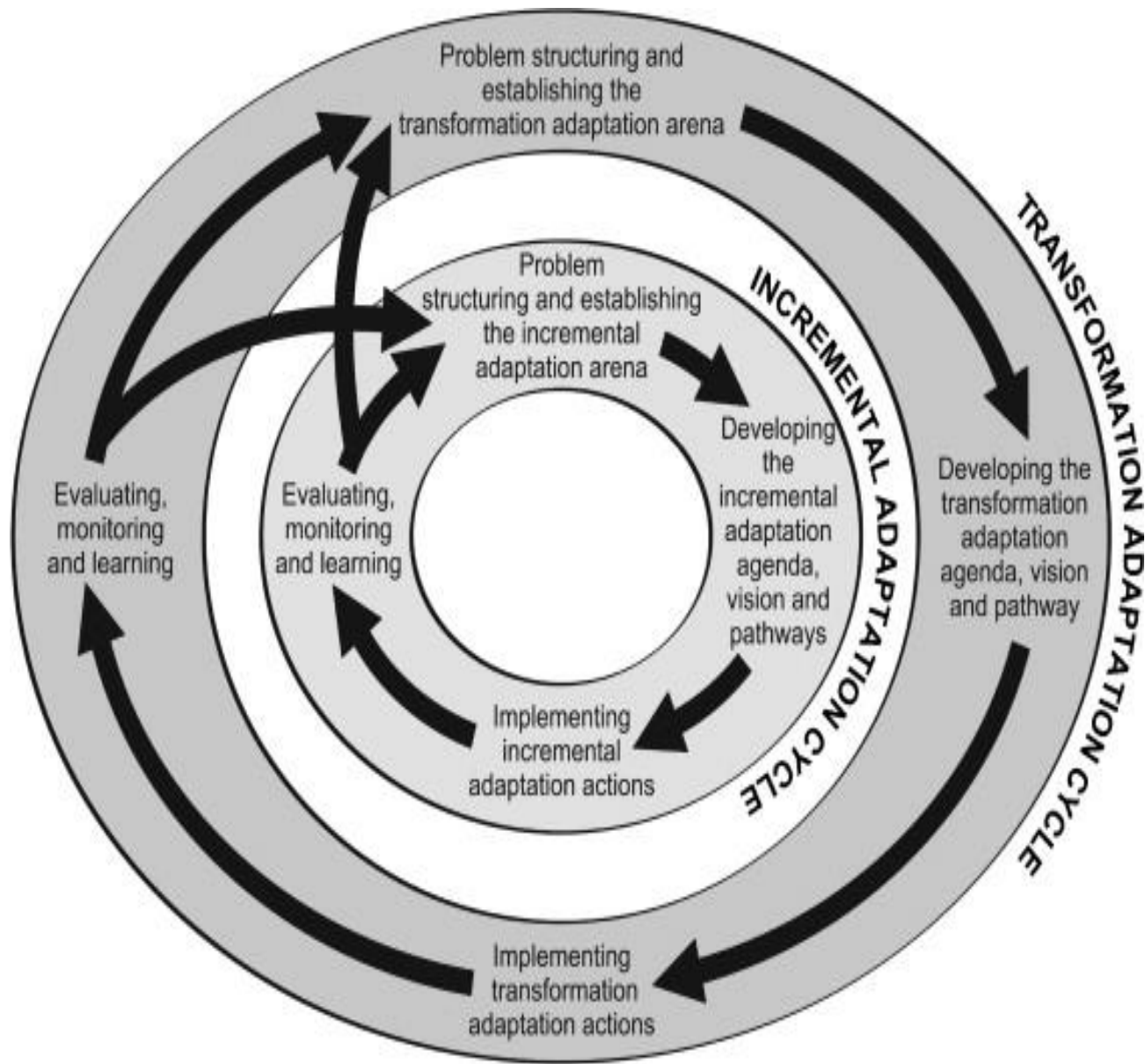
Kivalina, AK

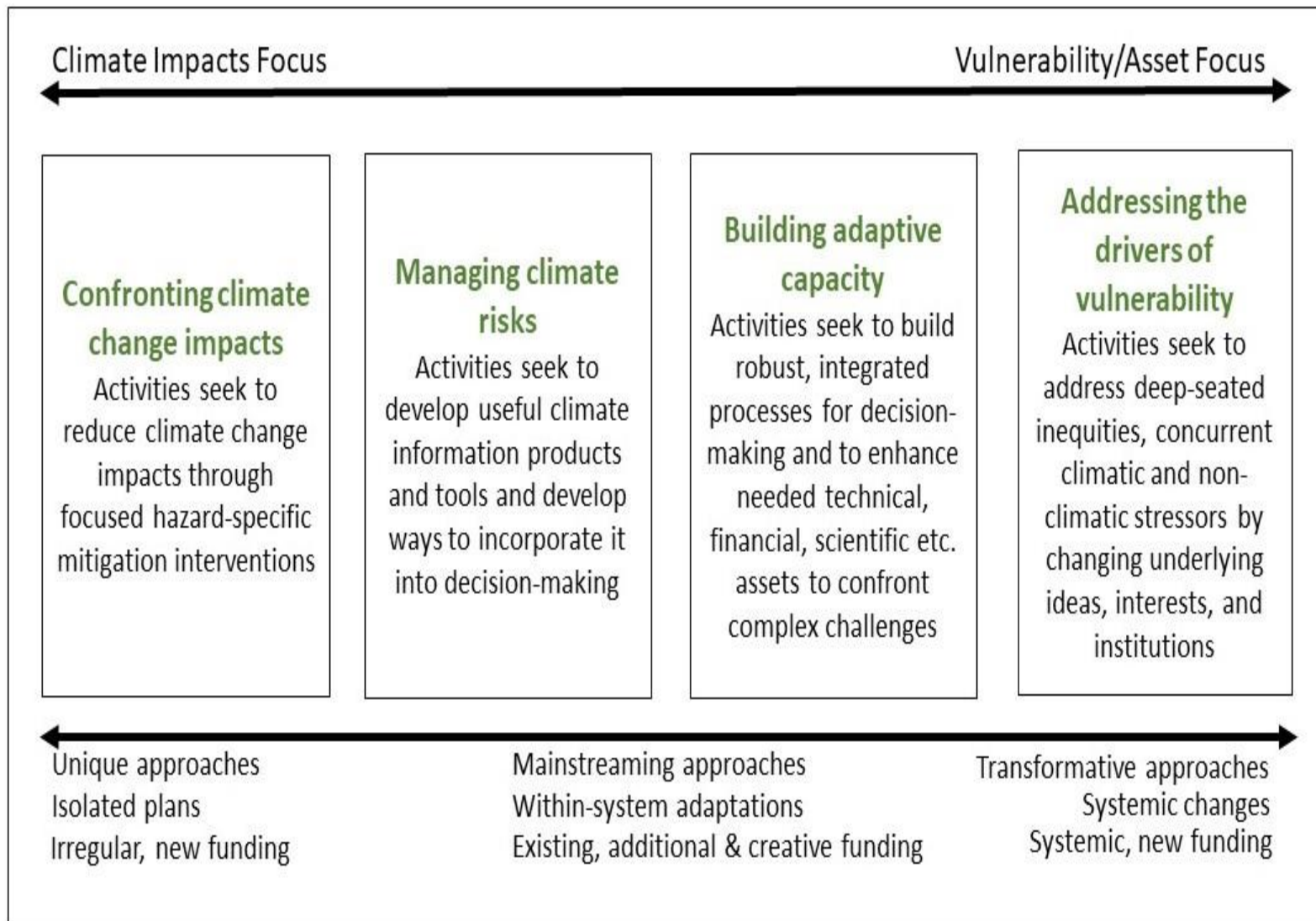


Buffalo, NY



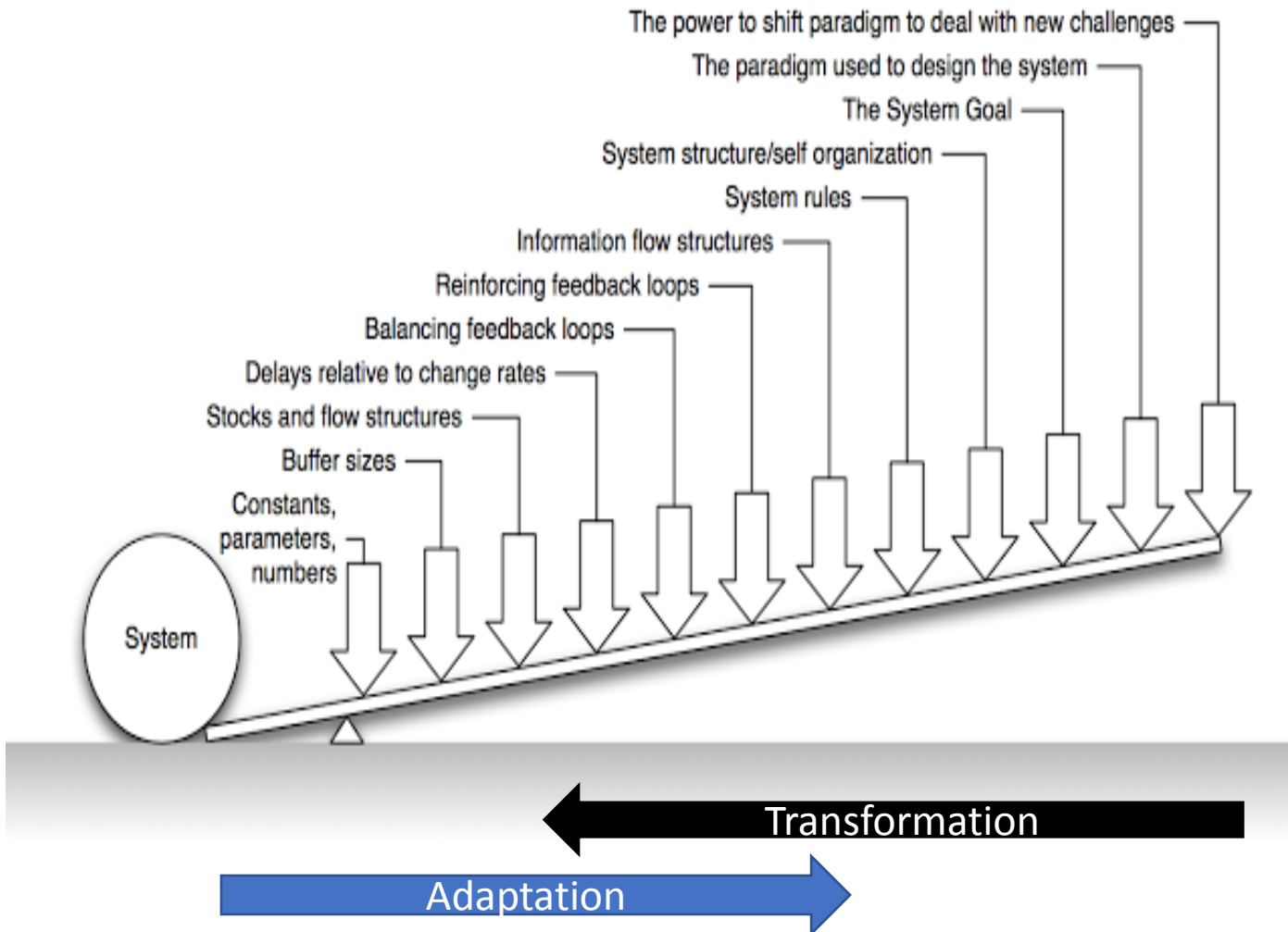
Oakland, CA





Source: Inspired by Klein (2008), drawing on McGray, Hammil and Bradley (2007, p.35)

Donella Meadows (1999): Places to Intervene in a System





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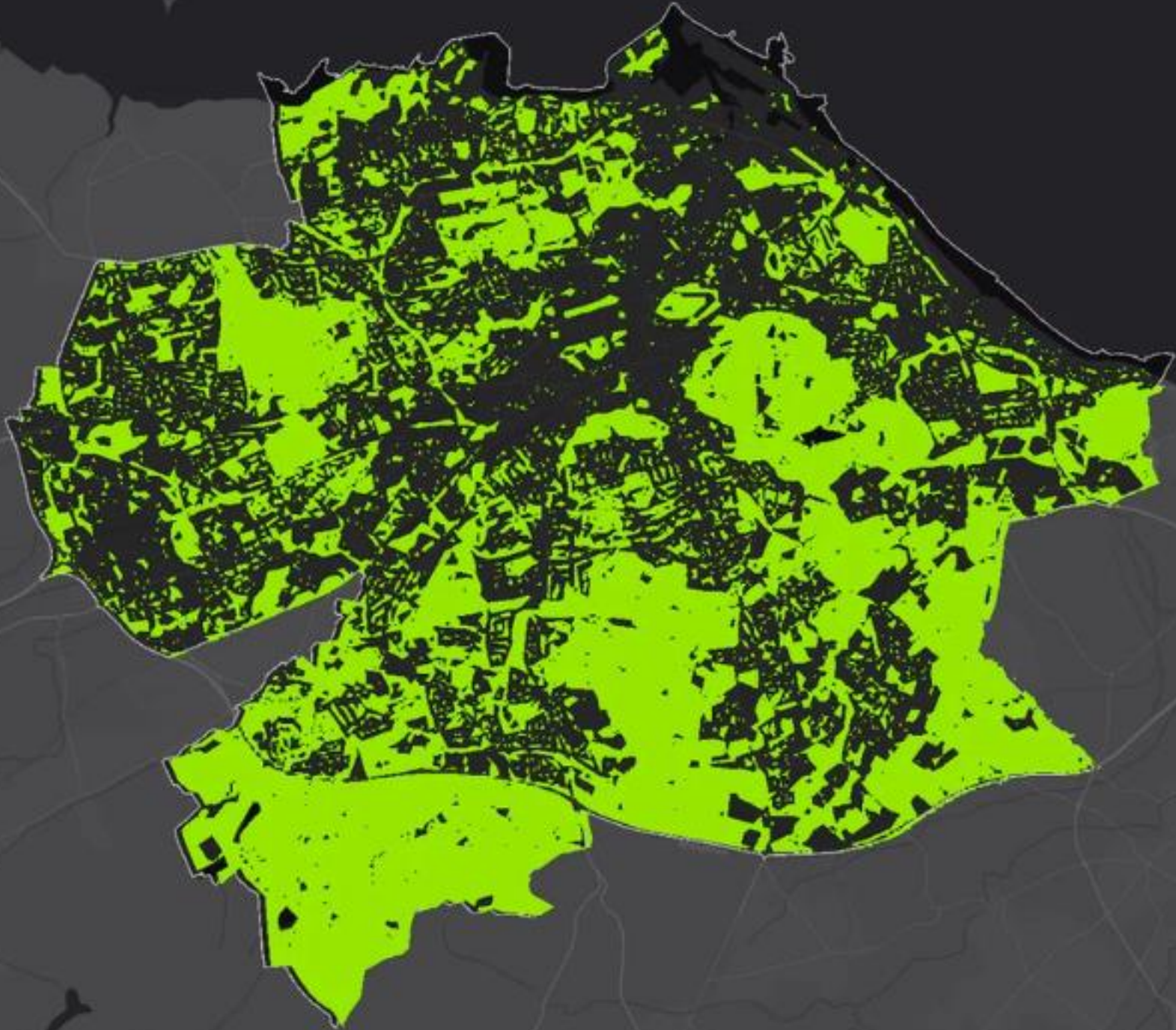
Edinburgh scenario



UNESCO World Heritage Site







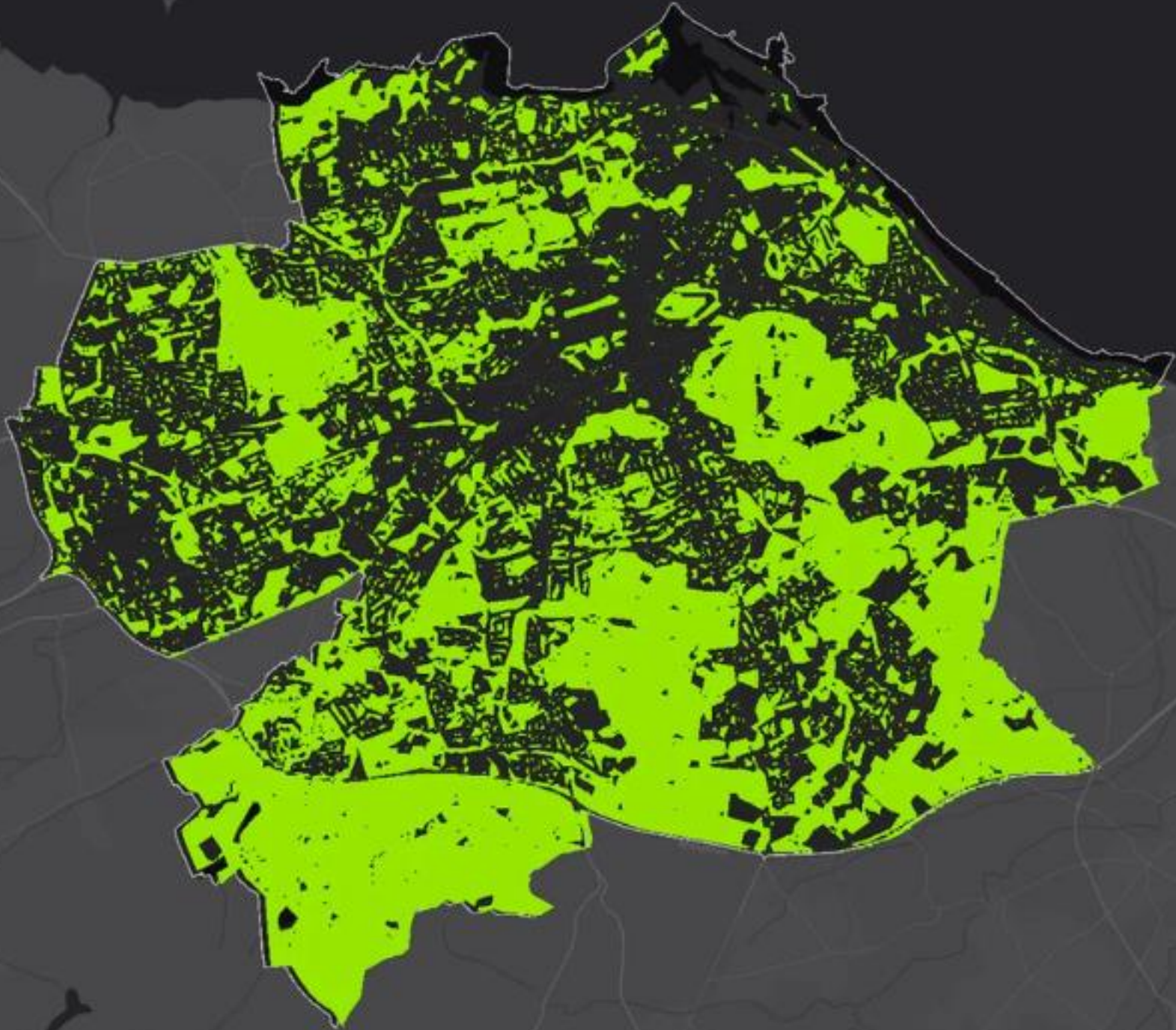




THE
STAND

A black wrought-iron gate stands closed, featuring a sign with the text "PRIVATE GARDENS". The gate is composed of vertical bars and horizontal rails. A small, round, silver-colored object is visible on the left side of the gate. The background is filled with dense green foliage and trees, suggesting a garden or park setting. A path is visible through the gate.

PRIVATE GARDENS



NEWS

Find local news

Going off the rails: The Edinburgh trams saga

By Steven Brocklehurst
BBC Scotland news website

30 May 2014 | Edinburgh, Fife & East Scotland

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Top Stories

Afghans hail US aid in 'joint struggle'
President Ghani thanks Donald Trump for supporting Afghanistan's battle against the Taliban.
14 minutes ago

Barcelona suspects appear in court
56 minutes ago

Watchdog to prosecute BHS ex-owner
54 minutes ago

Features







The Edinburgh Festival

fringe

04 - 28 AUGUST 2017
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*70 years
of defying
the norm
1947-2017*



EDINBURGH INTERNATIONAL FESTIVAL



EDINBURGH
INTERNATIONAL
BOOK
FESTIVAL

Edinburgh ranked second in the world for quality of life

Edinburgh topped a life quality poll and Scottish regions were "star performers"

You'll have had your quality of life: Edinburgh tops poll

[News](#) › [UK](#) › [This Britain](#)

Edinburgh proves capital choice for lifestyle

By [Paul Kelbie, Scotland Correspondent](#) | Friday 29 September 2006 23:00 BST | [0 comments](#)



Over 21% of children live in poverty.

Edinburgh ranks in the top Scottish quartile for incomes, but in the poorest quartile for indicators of poverty.

30% of households in deprived areas cannot afford basic items required for an adequate standard of living

Record numbers attend Edinburgh Fringe and International Festival

🕒 3 hours ago | Edinburgh, Fife & East Scotland

f 🐦 🗨️ ✉️ Share



Nearly 3,400 shows were put on across 300 venues at this year's Edinburgh Festival Fringe

The Edinburgh Festival Fringe and the International Festival have both had record breaking box offices in their 70th anniversary year.

By Monday afternoon an estimated 2,696,884 tickets had been issued for Fringe shows, an increase of 9% on last year.

Concerns over rise of holiday lets in Edinburgh city centre

By Joanne Macaulay
BBC Scotland News

🕒 8 May 2017 | **Edinburgh, Fife & East Scotland**



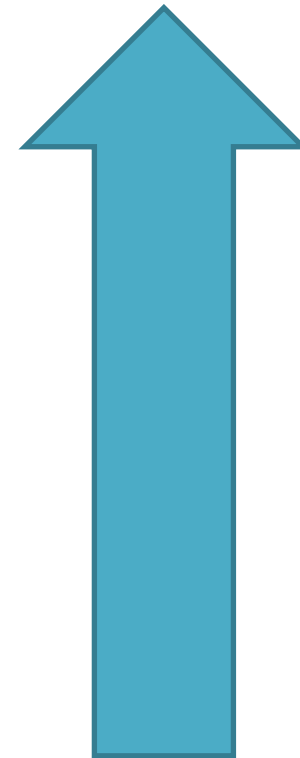
 Share

A sharp rise in holiday lets in Edinburgh city centre is making it more difficult to find somewhere to live in the capital.

Around 50% of homes in EH1 may be holiday lets by 2050.

Population: 2012 - 2037

28%



Climate change will bring new challenges and opportunities and act as a risk multiplier.

- Average temperatures will increase in all seasons (H) with the greatest increase in summer (M).
- What is considered a heatwave or extremely hot summer today will occur more frequently in future (M).
- Rainfall is projected to become more seasonal, with an increase in average winter and autumn rainfall (M). Average summer rainfall may decrease (L).
- Heavy rainfall events may occur more frequently in winter, spring and autumn (M). An increase in summer heavy rainfall events is less certain (L).

- Snow is projected to be less frequent in coastal locations like Edinburgh with rising temperatures (H), although by how much is complicated by increased winter precipitation (L).
- The growing season will continue to lengthen due to increasing temperatures in spring and autumn (H).
- Winter storms with extreme rainfall may become more frequent (L), although there is large uncertainty in models.
- Sea level will rise (H)

Flooding affecting all sectors

Natural environment and greenspace

- Biodiversity change and loss
- Longer growing seasons
- Increase in pests and disease

Built environment and infrastructure

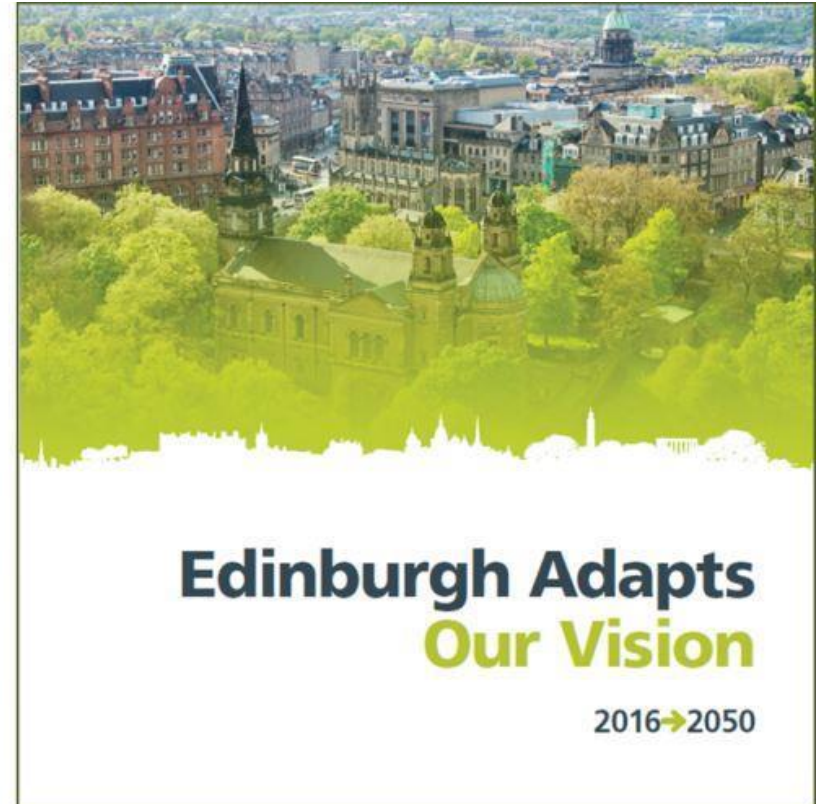
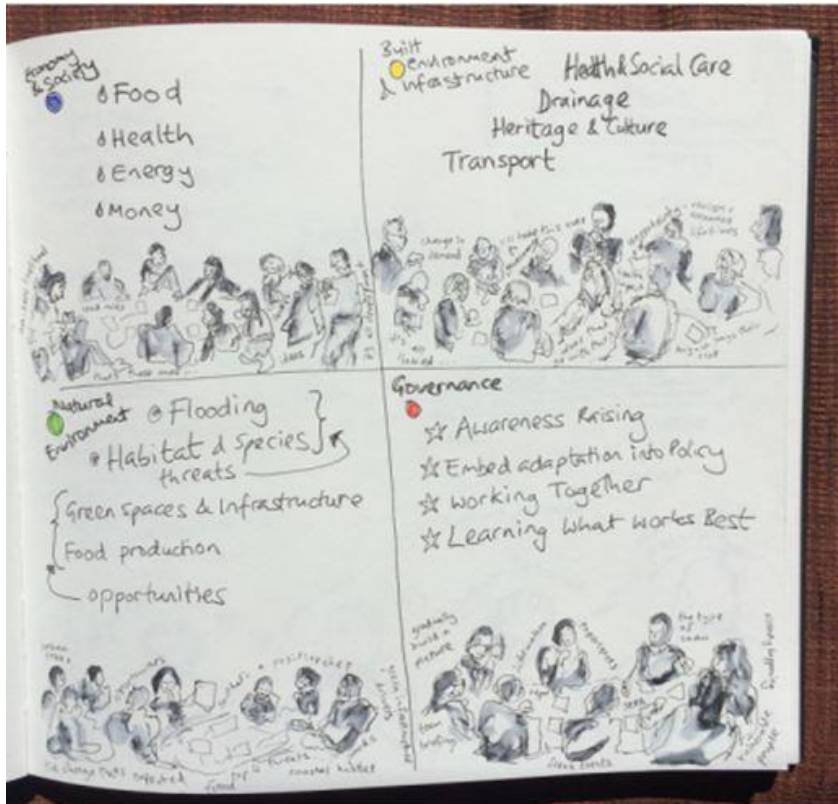
- Damage from extreme weather events
- Overheating
- Degradation of world heritage site

Society and economy

- Mental and physical health impacts from flooding and overheating
- Increased risk of disruption to events
- Changes in demand for products and services
- Business and innovation opportunities
- Research expertise

Consequences from overseas impacts

Edinburgh Adapts



Edinburgh Adapts vision and action plan

Adaptation
Scotland
supporting climate change resilience



EDINBURGH WORLD HERITAGE



THE EDINBURGH PARTNERSHIP



creative
carbon
scotland



Scottish Communities
Climate Action Network Government and deliver



Vision

Action Plan

- 50 Partners
- 100 actions



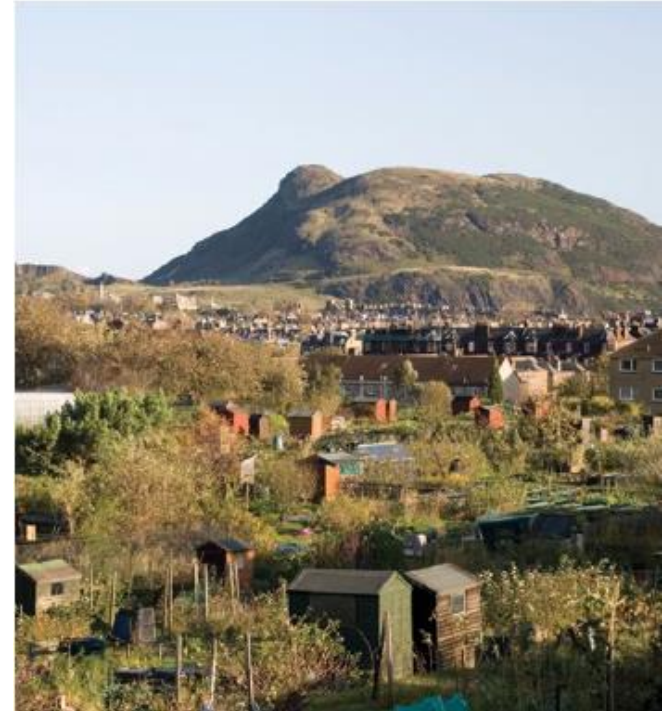
- Climate risks and opportunities are considered at all levels of decision making;
- We work with the grain of our valuable natural systems;
- The city is resilient to the shocks of extreme weather;
- Citizens live healthy, happy, lives safe from the unavoidable impacts of climate change.

“ By 2025 Adaptation projects have contributed to transformational change, reducing inequalities and empowering communities ”



“ By 2050, successes are drawing the attention of the international adaptation community, opening up further funding opportunities and showcasing Edinburgh as a pioneer of climate resilience ”

“ By 2025 Some brownfield sites and disused industrial areas are being transformed in to pop up community gardens, growing spaces and wildflower meadows, while others are retained as valuable habitats in their own right”



“ By 2050 Green threads weave through Edinburgh, a natural web connecting tree-lined neighbourhoods to flourishing community gardens and parks”.

Built environment, infrastructure and flood prevention

“By 2025, maintenance of Edinburgh’s iconic historic buildings is being adjusted to take account of the changing climate”

“By 2050 The towering grandeur of the old town and the elegant rise of the New Town are joined by a thread of innovative climate smart developments, while established communities are connected to the city centre by active travel gateways”



“By 2050 Community gardens, growing spaces, permeable pathways and segregated cycle lanes have replaced hard surfaces, improving water permeability across the city”.



“Sea levels continue to rise, but land use planning and improvements to coastal defences are protecting shore communities and important industrial areas”.

“By 2025 Pilot resilience projects are giving citizens a real say in planning decisions, empowering neighbourhoods to meet the challenges of climate change as a community”

“By 2050 Distinctive neighbourhoods have risen to the adaptation challenge. Supported by local community hubs, food growing in gardens and biodiverse greenspace has greatly expanded across the city”



“By 2050 ...Edinburgh has seized the opportunities afforded by changing tourism patterns and made sure its many festivals and celebrations are climate ready, enhancing its status as a world destination”



Edinburgh Adapts
Climate Change Adaptation Action Plan
2016→2020

Governance Actions – 9

- Edinburgh Adapts steering group set up
- Adaptation communications strategy
- Community planning preparation of LOIP 2016 – 2020

Natural Environment and Greenspace – 21

- Edinburgh Living Landscapes – map blue/ green estate, up to 70 Urban meadows
- Greening of Edinburgh's cycle network
- Holyrood Park Management
- Promote green infrastructure to help nature adapt

Built Environment and Infrastructure - 24

- Increase resilience of built environment through natural greening measures in new developments
- Avoid new developments in areas of medium to high likelihood of flooding
- Temporary greening of vacant sites
- De-paving/ permeable surfaces promotion

Historic Built Environment – 6

- Edinburgh World Heritage Management Plan
- Training in traditional repair and maintenance skills
- Maintain and repair historic buildings in Edinburgh

Flood prevention - 22

- Water of Leith flood protection scheme to be completed by 2018
- Strategic mapping and modelling sewer catchments
- Identify opportunities for natural flood management

Society and economy – 21

- Student engagement – policy and planning food project
- Food hubs development proposals
- Edinburgh community resilience project pilot – develop next phase

Questions?

Edinburgh Adapts vision has transformative elements.

Action plan focuses on short term incremental actions and embedding adaptation in to long term decision making processes.

Through the group discussions we will explore how some of the transformative elements of the Edinburgh Adapts vision could be applied at different locations across the city.

Part 1: What does a transformed place look like for this location?

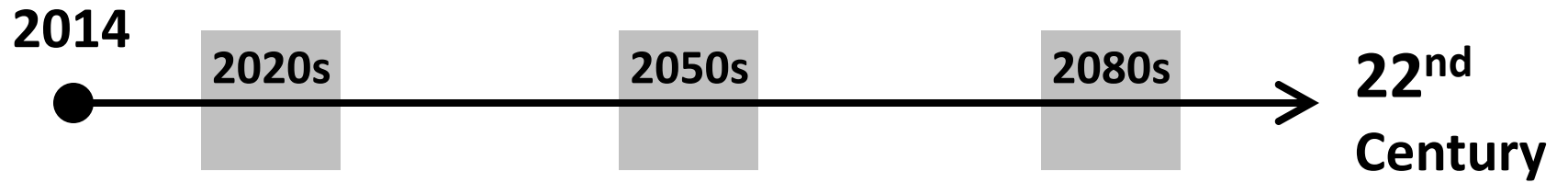
Part 2: Pathways to transformation

Introducing the groups

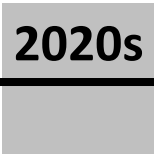
- Gogar/ Gyle – Sophie Turner
- Leith – Joseph Hagg
- City Centre – David Macpherson

Part 2: Pathways to Transformation

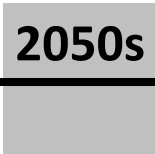
The future? What timescale?



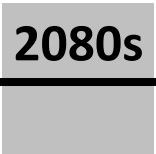
2014



2020s



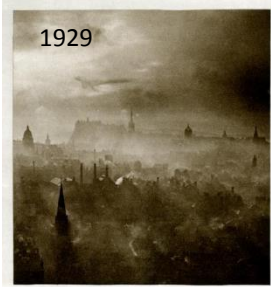
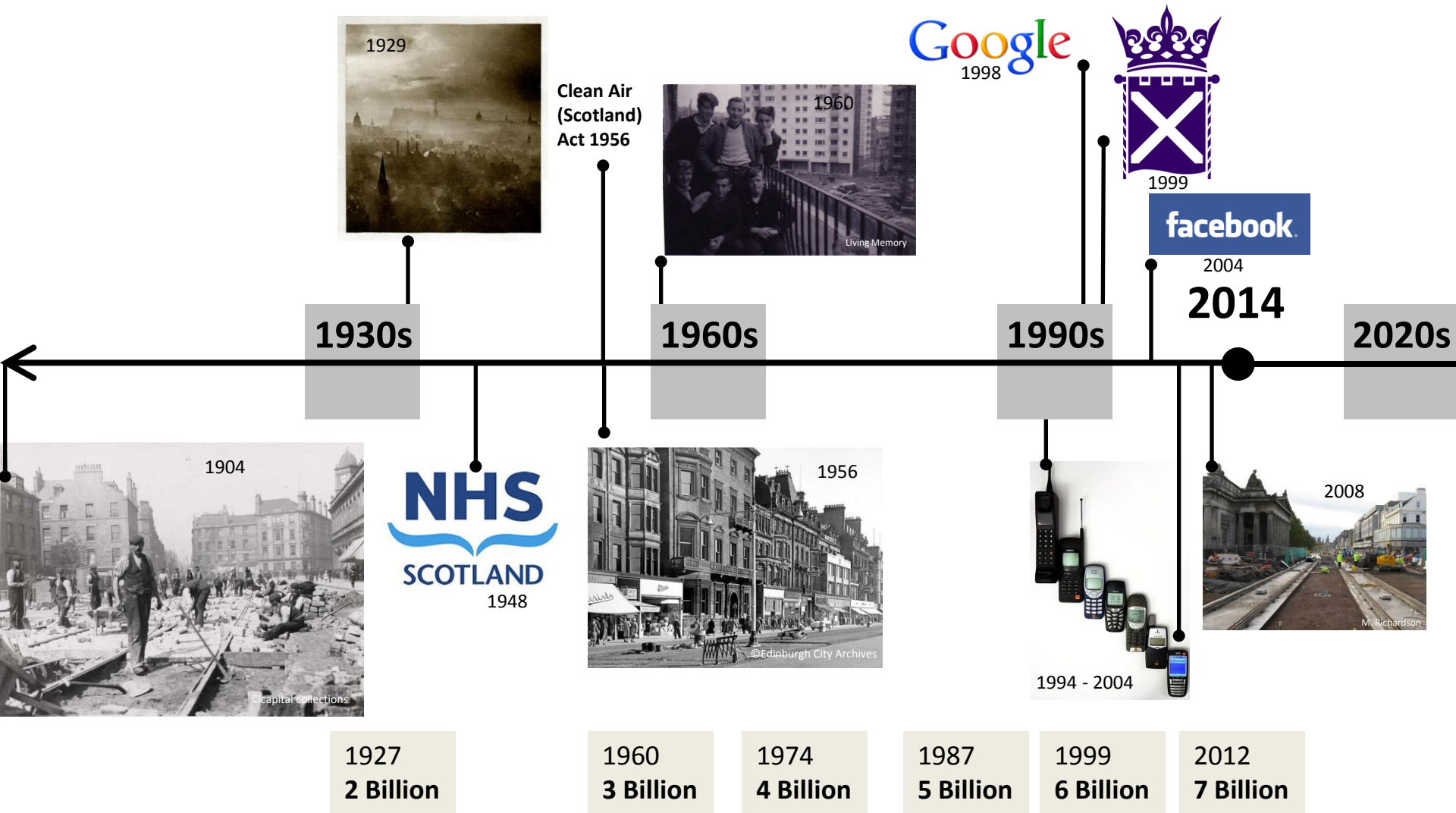
2050s



2080s



**22nd
Century**



Clean Air (Scotland) Act 1956



Living Memory



1999



2004

2014

2020s



1904

©capital collections



1948



1956

©Edinburgh City Archives



1994 - 2004



2008

M. Richardson

1927
 2 Billion

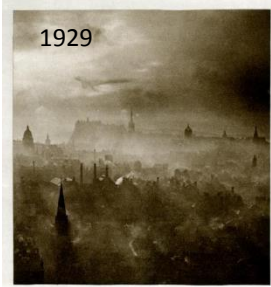
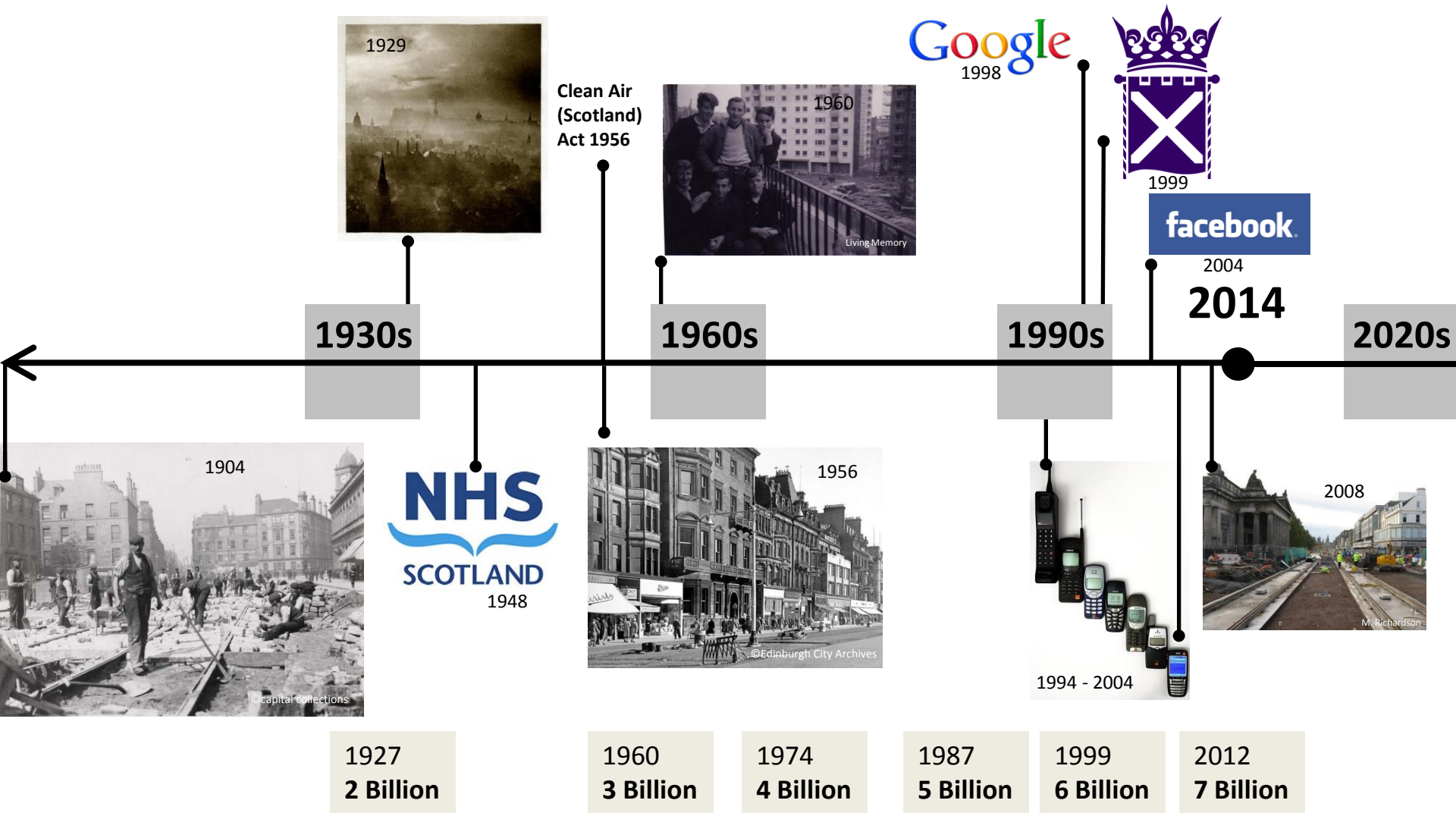
1960
 3 Billion

1974
 4 Billion

1987
 5 Billion

1999
 6 Billion

2012
 7 Billion



Clean Air (Scotland) Act 1956



Living Memory



1999



2004

2014



1904

©capital collections



1948



1956

©Edinburgh City Archives



1994 - 2004



2008

M. Richardson

Today we've been imagining that future...

2020

2030

2040

2050

2. What's already happening?



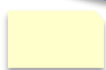
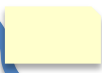
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Your Transformation

3. Pathways...

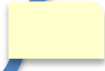
actions



actions



actions



Waypoints, Milestones,
Stages, Step Changes, Transitions...

1. What changed?

-
-
-
-
-

Think about opportunities, barriers... are there game-changers?

Wishful thinking or the secret to success?

1. What are the benefits and challenges of approaching adaptation from a transformative perspective?
2. How and when should we introduce transformation as part of adaptation planning?

Adaptation Scotland

supporting climate change resilience



adaptationscotland@sniffer.org.uk



[@adaptationscotland](https://twitter.com/adaptationscotland)



www.adaptationscotland.org.uk



The Adaptation Scotland programme is funded by the Scottish Government and delivered by sustainability charity Sniffer.

