



Approaches to Adaptation Planning in Local Government

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www.climate-northernireland.org.uk



Climate Adaptation
A catalyst amidst complexity

Climate NI: Who are we?



Aims to increase understanding of **climate change** impacts and risks within Northern Ireland and promote the **adaptation** actions necessary to address them

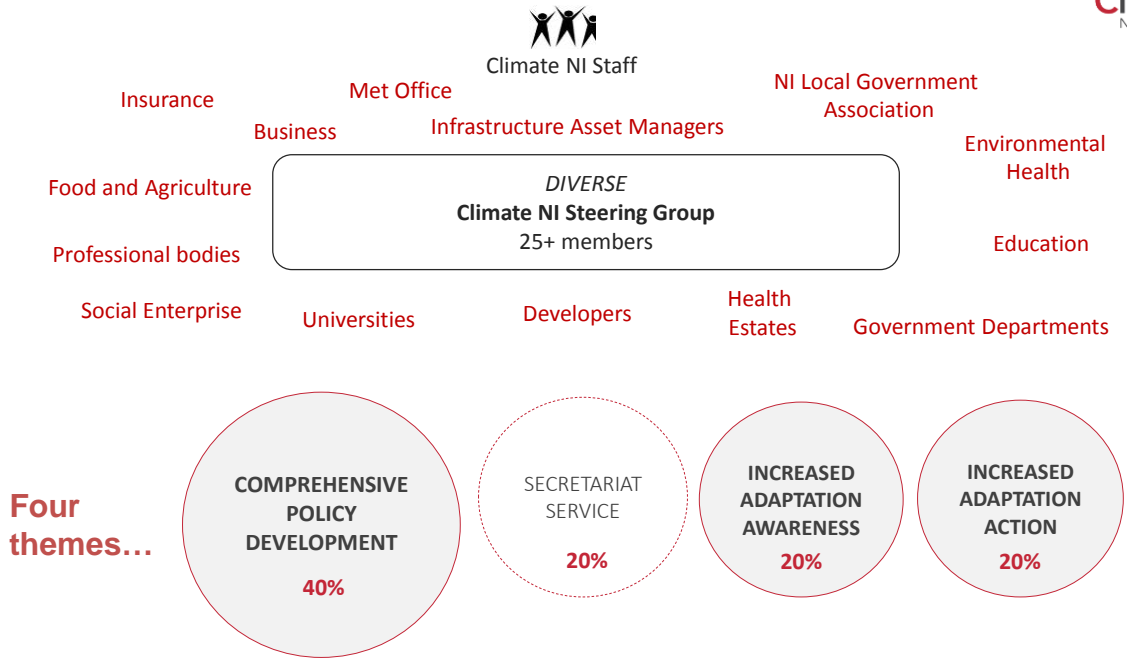


Climate Northern Ireland was set up and funded to help fulfil NI obligations to address climate change



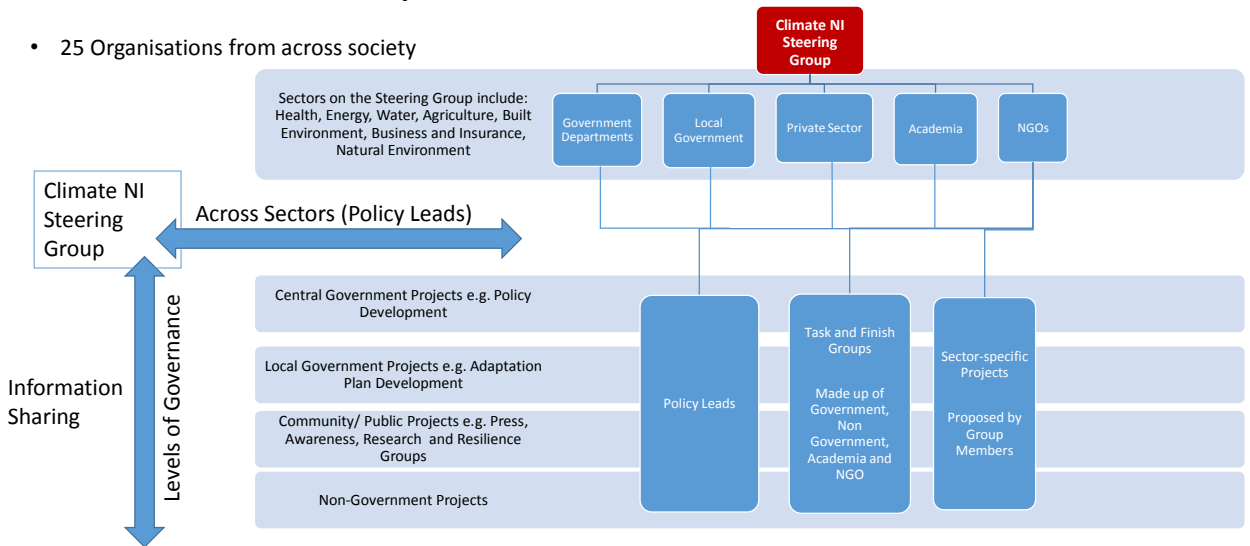
Two Key Considerations:

1. Trying to support groups who are not working in adaptation to begin doing so, but with very limited resource
2. These groups have very different people/groups /backgrounds so it can be difficult to facilitate collaboration



1. What does the Partnership look like?

- 25 Organisations from across society



Responding to Climate Change...

Mitigation - *'to make something less severe, serious or painful'*

Action to reduce greenhouse gas emissions

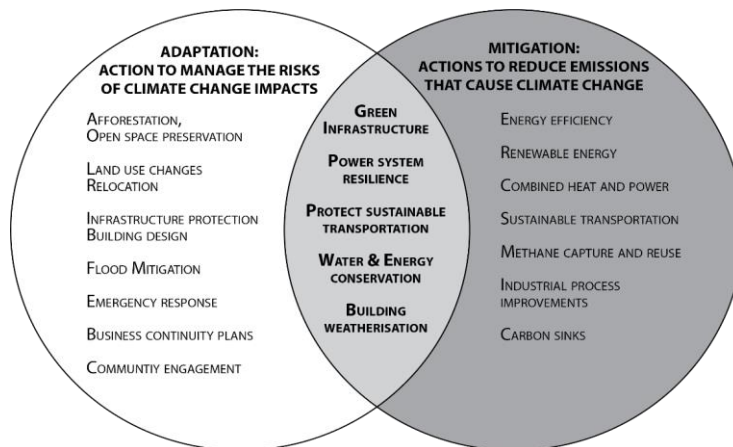
Adaptation – *'the process of adapting'*

Preparing for the impacts of climate change

We are already building change into the system – so we have to adapt at the same time as cutting emissions.

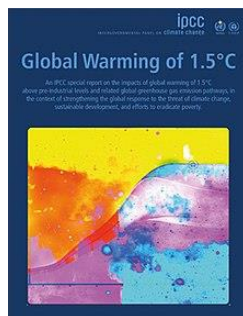


Climate Action



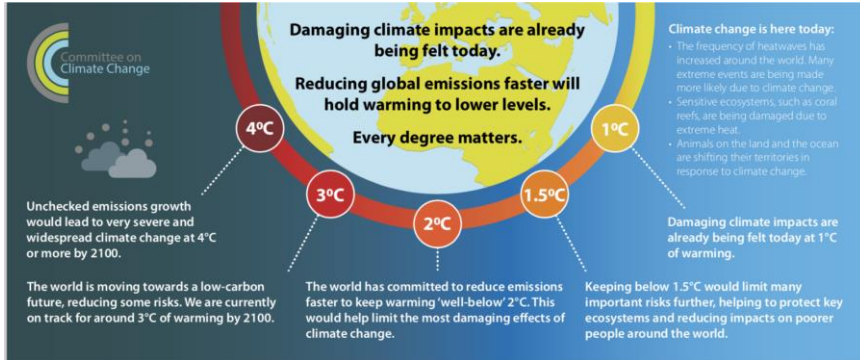
What does Climate Change mean for our world?

Climate Impacts - Global



IPCC Report (2018) – 'Global warming of 1.5°C'

- Global warming is likely to reach 1.5°C from as early as 2030. The Paris Agreement will not limit to 1.5.
- Requires a cut in greenhouse gas emissions by 45% by 2030 compared to 2010, and zero by 2050.
- Climate-related risks to health, livelihoods, food security, water supply, human security, and economic growth are projected to increase with global warming of 1.5°C and increase further with 2°C



Why stay below 1.5 degrees?

- Reduce climate extremes: E.g. if kept below 1.5 degrees, 420million fewer people would be exposed to extreme heatwaves
- The fraction of global land area that would change ecosystem type due to climate change factors (at 2 degrees) would be halved
- Reduce the impact on poor and disadvantaged populations
- Reduce risks of triggering large-scale irreversible shifts in climates E.g. loss of Greenland ice-sheet

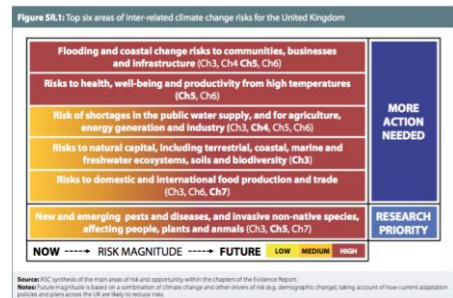
Global warming is likely to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate. (although recent UK Met office reports suggest we will reach 1.5 degrees warming in the next 5 years)

On current targets, the world is set for over **3°C** of warming from pre-industrial levels, which scientists say would be disastrous. (Contextual Note: Previous Ice age was around 4-5°C colder)

(CCC, 2019; IPCC, 2018)



- Services
- Water Management
- Marine and Fisheries
- Biodiversity
- Agriculture
- Forestry
- Infrastructure
- Human Health & Wellbeing
- Air Quality
- Business
- Built Heritage
- Tourism
- Telecommunications
- Coastal Areas
- Food Security



Observed Climate Change Headlines

- Northern Ireland's climate is changing in line with global patterns.
 - Temperatures are rising across all seasons.
 - Sea levels are rising.
 - The frequency and intensity of extreme weather events is changing.
- Northern Ireland is already experiencing rising average temperatures, with measured warming of around 1°C above pre-industrial levels. This trend is in line with global average temperature trends. All the top 10 warmest years for the UK in the series from 1884 have occurred since 2002.

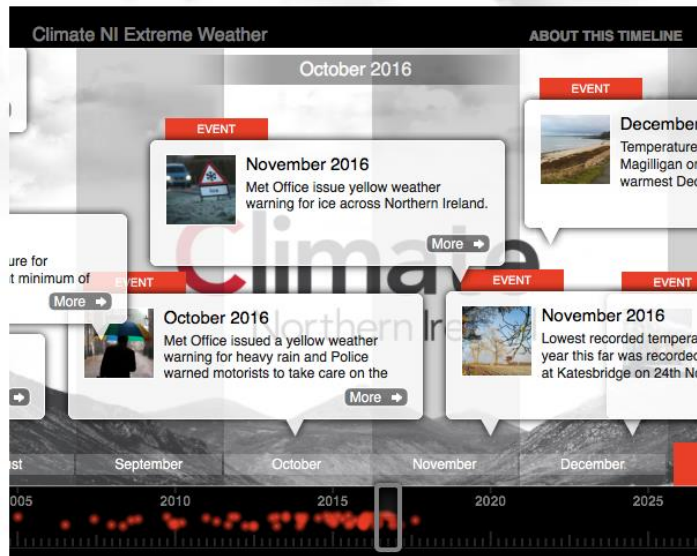
- The consequences of climate change can include flooding, extreme storm surges, heat waves, wildfires and drought. Extreme events are already impacting on our society, communities, economy and natural environment.

- **In August 2017 flood event** - Approximately 60-70mm of rain, equivalent to 63% of the average August rainfall fell in this area in the space of 8-9 hours, causing many watercourses to rise to unprecedented levels in a very short period of time. Hundreds of homes and businesses were flooded and extensive damage to roads and bridges occurred, with 5 bridges being washed away. City of Derry Airport was also closed for nearly two days due to the terminal being flooded.
- **February/March 2018 saw the arrival of 'the Beast from the East'** where NI experienced a spell of severe winter weather with very low temperatures and significant snowfalls including deep drifts in parts of Counties Armagh and Down. This caused widespread transport disruption; healthcare provision was significantly impacted.
- **June/July 2018 saw the warmest June since 1910** with the mean temperature being 2.1°C above the 1981-2010 average. This warm weather event resulted in NI Water issuing a 3 week hosepipe ban, which was the first hosepipe ban in NI in over two decades.



Climate NI online extreme weather timeline... using reported news to illustrate weather impacts... www.climatenorthernireland.org.uk

Extreme Weather Events in Northern Ireland



UK Climate Projections 2018

Met Office
Hadley Centre

Headline result:

“a greater chance of warmer, wetter winters and hotter, drier summers”



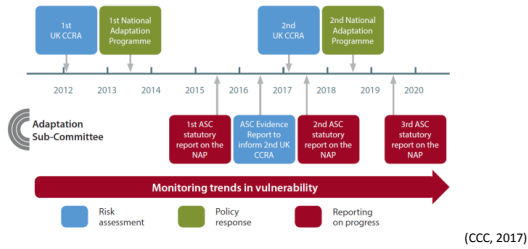
- Sea-level increase 'locked-in' regardless of emissions reduction

Note: Cold snaps, drier winters and wet summers **will still occur**.

- This means we must be prepared for a greater range of extremes year to year

Parameter	Observed	Projected	Example of Impacts
Temperature	The average temperature of the decade 2009-2018 was 0.9 °C warmer than the 1961-1990 average.	The temperature of hot summer days, by the 2070s, show increases of 3.7 °C to 6.8 °C, along with an increase in the frequency of hot spells. The chance of a summer heatwave like 2018 is around 50% by 2050.	This will have significant impact on water demand, public health, and infrastructure pressures from increased tourism and may lead to employers changing working hours or office arrangements.
		Cold snaps like -18.7 °C at Castlederg in 2010 will still occur but are projected to be less frequent as winters become warmer on average.	There are benefits of warmer winters but it may also have public health implications, as viruses such as flu are not killed by the colder weather.
Winter Precipitation	The amount of rain from extremely wet days has increased by 17% when comparing the decade of 2008-2017 with the period 1961-1990.	Average Winter rainfall is projected to increase by 10% by mid-century, with some days being much wetter.	Flooding can have significant impact on infrastructure, public safety, mental health, biodiversity and business disruption as has been experienced across Derry City and Strabane District Council in previous years.

Parameter	Observed	Projected	Example of Impacts
Summer Precipitation	Northern Ireland Water experienced a 'High Demand Incident' leading to the first hosepipe ban in two decades during the heatwave of summer 2018.	Decreases of up to 20% of average summer rainfall can be expected with drought conditions occurring more often. However future increases in the intensity of heavy summer rainfall events are projected.	Decrease in summer rainfall impact on agriculture, river flows and fishing, water quality and public water supply or increased respiratory problems from dust and pollen.
Storms and Extreme Weather	The frequency and intensity of extreme weather events is changing.	UK projections anticipate increases in extreme weather events with higher intensity rainfall events, storm events and increased flood risk.	Extreme events impact on our society, communities, economy and natural environment.
Sea Level & Sea Surface Temperature	Mean sea level around the UK has risen by about 17 cm since the start of the 20th century (when corrected for land movement).	Northern Ireland is locked in to at least 11cm sea-level rise by 2100, but unless global emissions decline, that number could be as much as 94cm.	Significant impact on flood defences, urban centres, agricultural land and infrastructure.



Overarching Climate Change Policy (Climate NI work with DAERA on this)

UK Climate Act (2008)

- Risk
- Opportunities

Climate Change Risk Assessment (what climate projections mean for society):

The UK Climate Change Act requires the UK government to produce a UK Climate Change Risk Assessment (CCRA) every 5 years

- Planning

Northern Ireland Climate Change Adaptation Programme

In response to the CCRA (again every five years), the Climate Change Act also requires each of the devolved administrations to produce a Climate Change Adaptation Programme.



Overarching Priority Area: Natural Capital (NC), including Terrestrial/Coastal/Marine/Freshwater ecosystem, soils and biodiversity

Objective NC1: We have species, habitats and water bodies that are resilient to the impacts of climate change

Objective NC2: We have coastal communities, habitats, landforms and infrastructure that are resilient to the impacts of climate change

Objective NC3: We have soils and land types that are resilient to the impacts of climate change

Overarching Priority Area: Food Security/Global Food Production (I)

Objective I1: We have a food system that is resilient to impacts of climate change

Overarching Priority Area: Infrastructure Services (IF)

Objective IF1: We have Transport & Network Services that are resilient to the impacts of Flooding & extreme weather

Overarching Priority Area: People & Built Environment (PB)

Objective PB1: We have people, homes, buildings and communities that are resilient to the impacts of flooding & extremes of weather

Overarching Priority Area: Disruption to Businesses & Supply Chains (B)

Objective B1: We have businesses that can adapt to the impacts of Climate Change & extreme weather



How climate change affects people and communities
 The health and wellbeing of the UK population will be affected by climate change. Flooding and heat are the biggest risks, with an increase in pests and diseases also possible. Action is required to deal with these risks, and to seize the opportunities.

UK 2017 Climate Change Risk Assessment

	Communities and settlements	Buildings	Health and social care system	Population health
Heatwaves	Heatwaves, urban heat island, air pollution	Overheating	Overheating risks to patients, social care, occupational risks, energy use	Heatwave risks to population, mortality, injury etc.
Floods	Flooded communities, resilience, relocation, blight/economic effects	Flood damage, damp, mould	Flood risks to NHS assets, service disruption	Flood impact on mental health, deaths and injuries
Drought	Risk to water supply, drought	Subsidence	Service disruption	Water supply failure, risks to public health
Cold	Risks from extreme weather	Damp homes, cold homes	Service disruption	Cold risks to mortality and morbidity

Adaptation challenges...

We need to plan for future climate rather than relying on our perceptions of past climate

Risks to our communities:

- Health and wellbeing from higher temperatures in buildings
- Risk to people, communities and buildings from flooding
- Risks to building fabric from moisture, wind and driving rain

Opportunities:

- Higher temperatures may make outdoor activities more attractive
- Warmer winters may reduce the number of 'indoor heating months'



ADAPT TO CLIMATE CHANGE AND IMPROVE WELLBEING BY...

- increasing urban green space
- using sustainable urban drainage (SUDS)
- making temperatures in homes comfortable in winter and summer

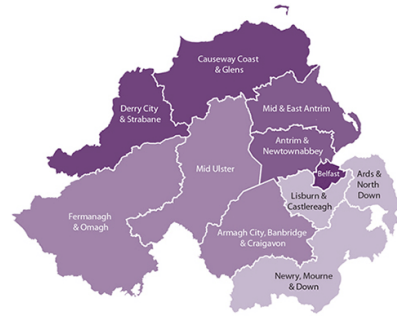


INSTEAD OF...

- limited green space
- overloaded drainage
- overheating homes
- cold and damp homes

Role of 11 Northern Ireland local authorities...

- Only central government is required to report against UK Climate Act.
- However DAERA decided to commission Climate NI to develop a 'Civil Society and Local government' chapter as part of NI Climate Change Adaptation programme.



Objective	Proposed activity	Case study
NC1	Local Biodiversity Action Plans & Local Biodiversity Implementation Plans that encourage resilient species, habitats and water bodies.	Interreg Project 'Collaborative Action for the Natura Network (Newry Mourne and Down)
NC2	Local development plans that encourage resilient coastal communities, habitats, landforms and infrastructure.	Project to examine risks to infrastructure services due to coastal erosion (Newry, Mourne and Down/ Ards and North Down)
NC3	Local Biodiversity Action Plan & Local Biodiversity Implementation Plan (NE4) which encourage resilient soils and land types	Project at Brackagh Moss which aims to preserve and restore the wet fen, increasing species diversity and increasing water retention on site (Armagh City, Banbridge and Craigavon)
I1	Encourage food resilience through 'grow your own' initiatives	'Grow your own' allotment initiative (Mid Ulster Council)

Climate adaptation should be considered in Local Development Plans as indicated by Strategic Planning Policy Statement.

However our evidence gathering work (2017) illustrated:

- No cohesive consideration of climate adaptation across services within councils
- A number of activities undertaken by specific service areas to address vulnerabilities, often driven by factors other than climate change

Case Study: CLIMATE



Derry Now News Sport Obitis Features Vid
Derry's Council leading the way on tackling climate change one year on after devastating floods



20:30 Wednesday 22nd of August 2018
Derry City and Strabane District Council has announced that it is the first Council in the North to introduce a Climate Adaptation Plan, one year on from the devastating floods which caused widespread damage across the district last August.

Project

- June 2017-May 2020
- €1.3m INTERREG VB transnational project
- DCSDC Lead Partner
- International expertise & best practice

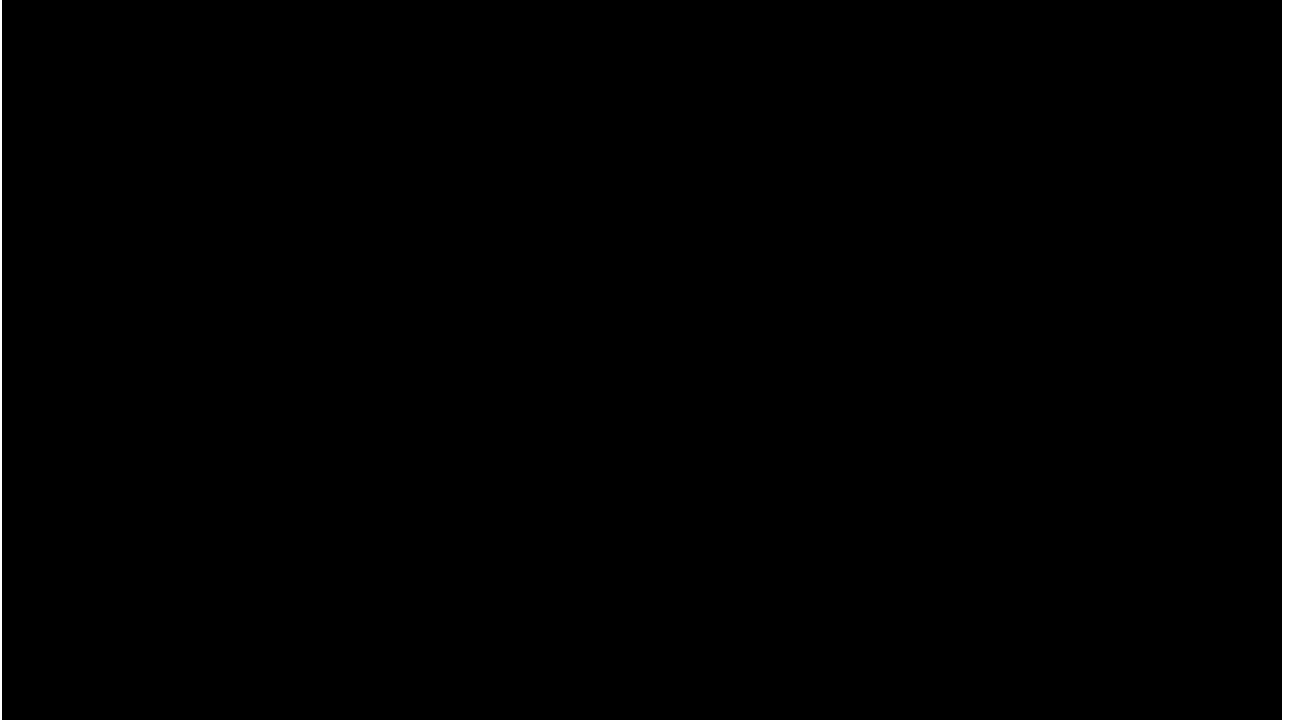
Main Outputs

- Development of Climate Adaptation Plans
- Adaptation Planning Model & Toolkit
- Published Research Papers

DCSDC Adaptation Plan Vision

“That Derry City & Strabane District Council is better prepared and more resilient to the effects of climate change, creating a safe and sustainable region for all”





Local Government Adapts: Adaptation Actions

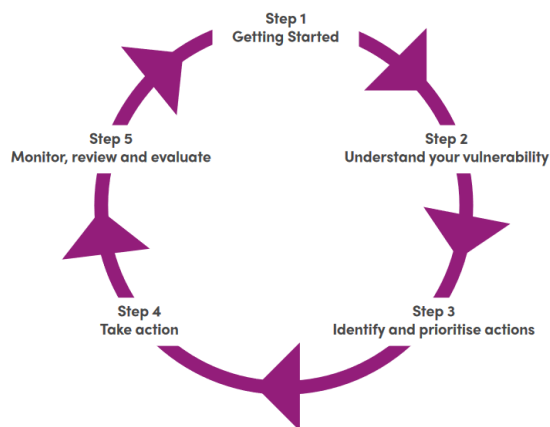


Figure 1: Adaptation Cycle²⁹

Step 1 Getting Started

(Define objectives, assemble team and put in place any required procedures)

Step 2 Understand your vulnerability

(Consider your vulnerability to past weather event and projected climate)

Step 3 Identify and prioritise actions

Step 4 Take action

Step 5 Monitor, review and evaluate

Examples of Cold Snap Impacts Identified– e.g. 2010 Freeze-Thaw, 2018 ‘Beast from the East’

Function and Services	Staff and Resources	Business and Community
Transport and infrastructure in rural areas affected	Staff unable to get to work	Interruption of transport infrastructure
Bins not emptied	Cost to council: Extra staff hours Clean up of street by council	Bins not emptied
Grit stores were depleted		Homes flooded due to thaw
Airport closure		Farming impacted
School closures		Positive – communities supported one another



Cold Snap Measures
Regional Task and Finish Group: Dynamic risk assessments
Heritage Working Group: Freeze-thaw impact on heritage
Green infrastructure Forum ASTF and Access Forum



Examples of Storm Impacts – e.g. Storm Ophelia and Frank 2017

Function and Services	Staff and Resources	Business and Community
Road and park closures	Monitoring tree falls on walls and reporting of incidents	Closure of heritage risk assets and parks
Peace bridge and road bridge closed	Staff sent home early	Cancellation of outdoor markets and events
Waste blowing into rivers etc. causing pollution	Dangerous to carry out repairs	Increase risk of tree fall repairs
Structural damage to buildings	Staff required to be on call and ready to react to storms	Broadband disruption
Interruption to services such as bin collections		Power cuts
		Damage to private property



Existing Storm Measures
New woodland storm tree protocol, structural assessments, Basic tree inspection training and Derry Walls (rangers monitor)
Tree officer and Tree management system



Examples of Flooding Impacts Identified – e.g. August 2017		
Function and Services	Staff and Resources	Business and Community
Damage to council assets	Health and safety issues	Disruption and damage to businesses
Footpath infrastructure damaged	2 emergency/resident centres established	Farm animals killed
Civic amenity sites damaged with compactors and skips washed away	600 homes inspected by environmental health officers (cost £387,000)	Damage to housing (including oil tanks washed away)
Spread of knotweed	Considerable overtime	Household remained homeless after considerable number of months
		Airport closed closure
		Playing fields closed



Existing Flooding Measures
NW flood review
Interagency response plan

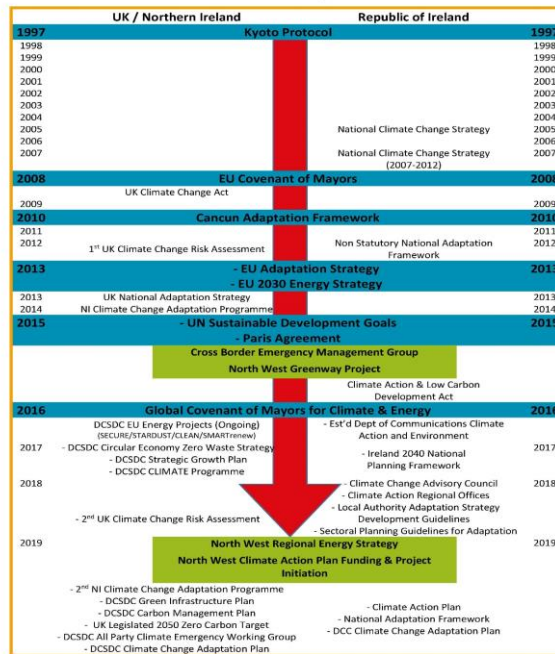


DCSDC Climate Action Summary

- Climate Team & Adaptation Working Group
- All Party Climate Emergency Working Group
- Evidence & Data
- Climate Adaptation Plan 2020 -2025
- Green Infrastructure Plan 2019-2032
- Local Development Plan
- Communication & Awareness
- Carbon Management Plan
- Local Community Growth Plans
- Infrastructure & Regeneration – Climate Change Assessment
- **SECURE** – Smarter Energy Communities
- **SmartRENEW** – Smarter Renewable Energy & Heating Management
- **SMARCTIC** – Smart Energy Management in Remote Regions
- **STARDUST** – Holistic and Integrated Urban Model for Smart Cities
- Zero Waste Circular Economy Strategy



North West Strategic Context



North West Cross Border Action



- North West Regional Energy Strategy
- North West Green House Gas Study
- North West Greenways Project
- Cross Border Emergency Planning Group
- NWSGP Climate Change Working Group – Led by ICLRD on behalf of North West Strategic Growth Partnership
- North West Climate Action Plan (Development Phase 2019-2022 / Delivery Phase 2022-2032)

“Deliver climate action on a cross sectoral multi agency basis to achieve greater adaptation and resilience to the effects of climate change while leading by example to reduce emissions and mitigate against further global warming.”



Place-making: Nature Based Solutions & Green Infrastructure Approach



“Green Infrastructure will be maximized to mitigate against and adapt to the effects of climate change”

DCSDC GI Plan
Climate Change Strategic Aim

“Service providers are relying on infrastructure principles conceived in the last century to address 21st century challenges while ignoring and degrading natural ecosystems.”

“Green Infrastructure is more flexible and resilient to climate change than its gray counterpart.”

World Bank Group ‘Integrating Green & Gray’ 2019

North WEST Climate Action Plan
North West Natural Capital Study (2019/2020)

Landscape scale planning and land use management approach to North West Climate Action



Northern Ireland Climate Change Adaptation Programme 2019-2024 (NICCAP2)



Climate NI was commissioned by DAERA to develop a chapter for inclusion in NICCAP2 which outlines the important work planned by non-government organisations

Civil Society

Local Government

- Academic sector
- Community and Voluntary Organisations
- Private sector

- Local Councils (SOLACE)
- NI Local Government Association (NILGA)
- Sustainable NI

Chapter will be included alongside government chapters



No.	Action	Reporting partners	Implementation Timeline
1	Work with local councils to embed the adaptation cycle across local council planning with the aim of encouraging councils to complete a minimum of step 1 by 2021 and step 4 by 2024	NILGA, Climate NI, Sustainable NI supported by SOLACE ²⁰	By 2024
2	Explore the capacity needs within local councils to enable delivery of Action 1 (above) and develop support mechanisms	Climate NI, Sustainable NI, NILGA	By 2024
3	Develop and pilot a 'monitoring and reporting process' which can be used by local councils to undertake Step 5 of the adaptation cycle	Climate NI, Sustainable NI	By 2021
4	Share learning from CLIMATE NPA Interreg project on adaptation cycle planning with local councils	Climate NI and DCSDC	By 2021
5	In bringing forward their LDPs, Councils will take account of climate change adaptation considerations as indicated in the Strategic Planning Policy Statement	Local councils	Ongoing



Aims

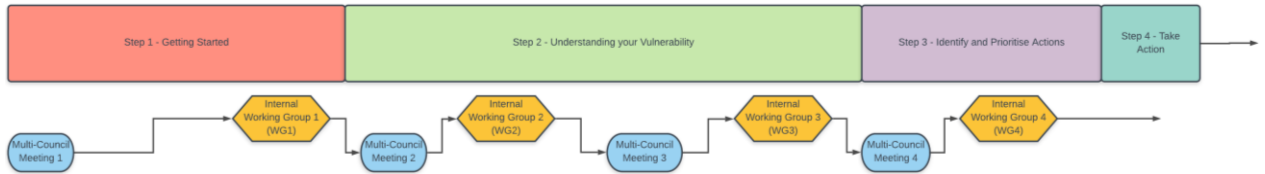
- Share learning from the CLIMATE project
- Develop a 'NI local government climate change adaptation support tool'
- Development of NI-wide council climate change group – support from across government and society - DfI, NILGA, DAERA, Climate NI Steering Group etc...
- Get all councils to begin the adaptation planning process with established working groups by 2021 at the latest
- Get all councils to develop an adaptation plan

Points of Note

- This will be different from the CLIMATE project as there will be no specific project manager resource. Quality of the working group is vital
- It is an iterative process, so a task being done once does not mean it won't need to be reviewed again.
- **This process will produce a plan, but in many ways the more important outcome of this process should be to engrain a critical capacity in council staff to assess decisions in the context of climate action.**



Adaptation Plan Development Process



What are the Two Groups?

- **Multi-Council Meetings**
 - Adaptation contacts from each council and other relevant agencies as required.
 - ‘Train the Trainer’ sessions – provide the information you need at the following internal working group and do a workshop trial run.
 - All councils are welcome, even at different stages of the process.
- **Internal Working Group:**
 - Representatives from each service area within a single council.
 - The operational working group; progressing adaptation planning process and liaising with other working groups e.g. All-party

Our Role

- Provide councils with a toolkit to follow – e.g. agendas, terms of reference, worksheets, factsheets
- Provide as much support as we can – training through multi-council groups
- Guidance through the process



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