



An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine

Adapting to the Impacts of Climate Change in the Agriculture Sector

Damien Wyse

7 August 2020

Overview

- Climate Change Adaptation
- Adaptation Policy Influences
- Projected Changes in Ireland's Climate
- Priority Impacts in Agriculture
- Cross Sectoral Adaptation Issues
- Adaptation Case Studies and Measures



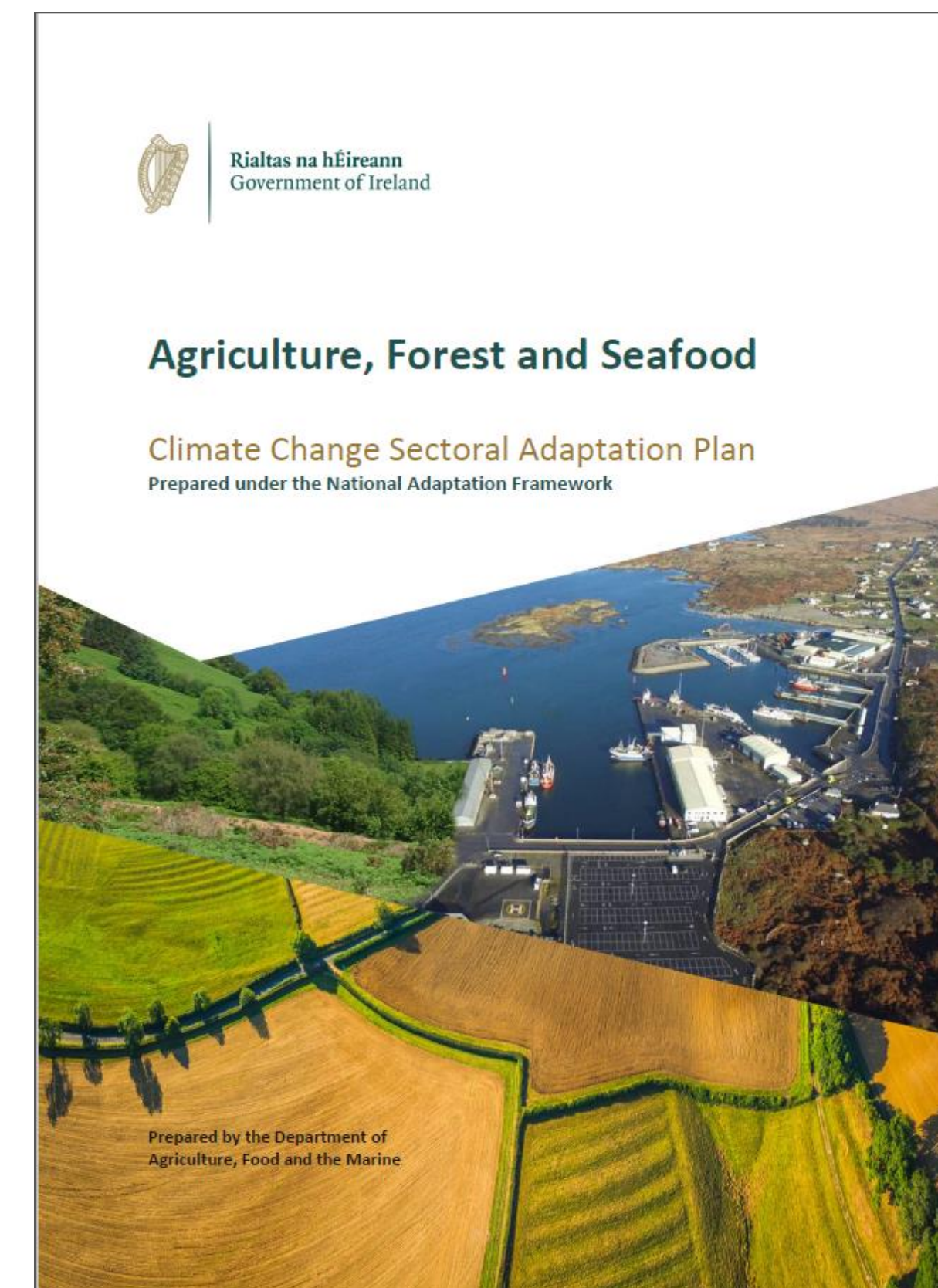
Climate Change Adaptation



What is adaptation?

- Climate Change Adaptation refers to how we plan for the negative effects of climate change and take suitable action to prevent or minimise the damage it can cause.

Adaptation planning allows us to build resilience to changes in our climate, allowing society to take advantage of any opportunities that might bring.



Adaptation as a Real Necessity



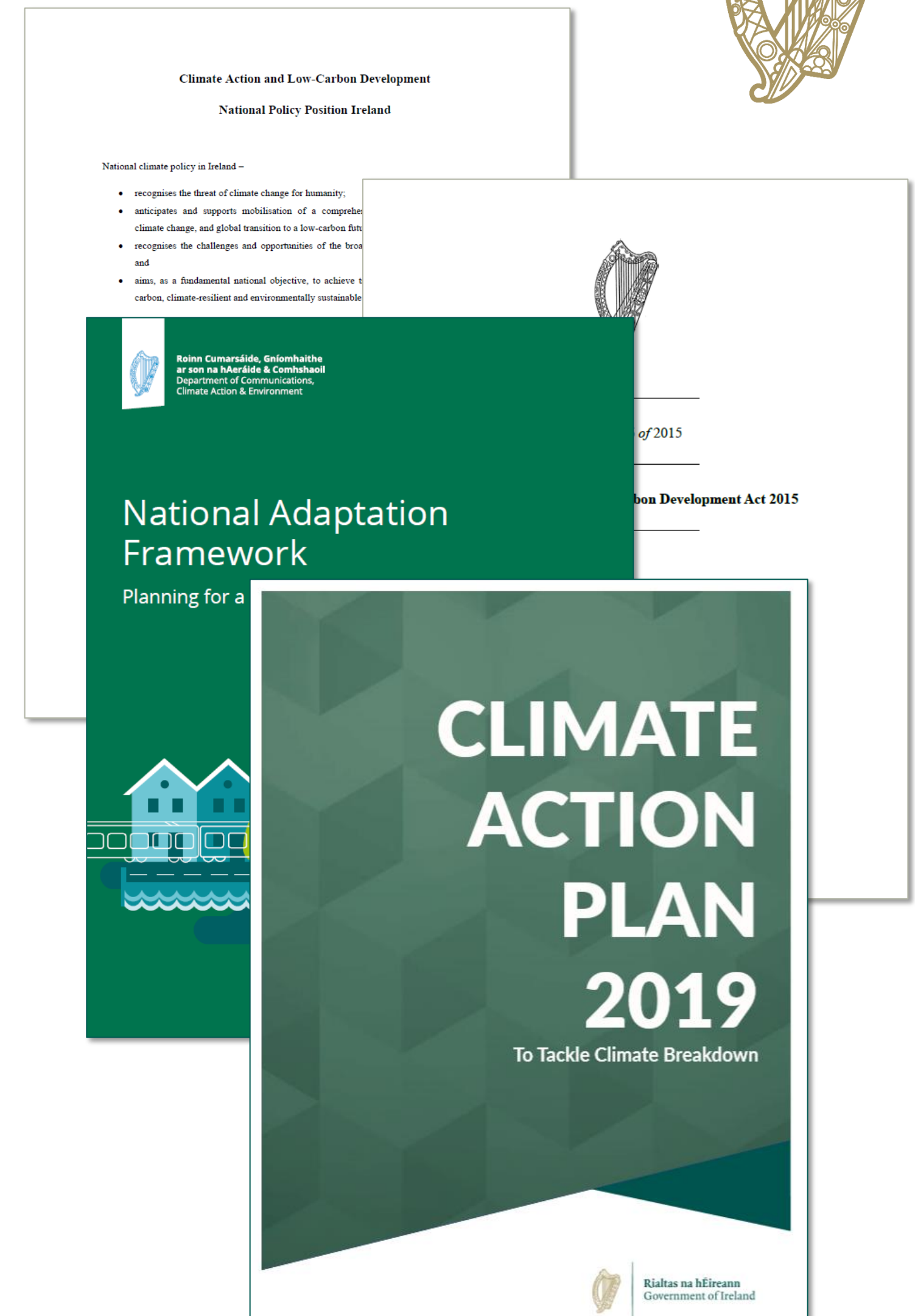
Ireland's climate is changing in line with global patterns;

- increase in mean annual air temperature and the number of warm days,
- decrease in number of annual frost days,
- increase in annual rainfall in northern and western areas with decreases or small increases in the south and east.

Sustainable adaptation is going to be necessary one way or another, and the agricultural sector must be ready for that.

Adaptation Policy Influences

- Paris Agreement -enhance adaptive capacity
- Sustainable Development Goals – Goal 13 Climate Action, strengthen resilience and adaptive capacity
- Green Deal – proposal to enshrine adaptation strategy in law
- Climate Action and Low Carbon Development Act 2015 (the 2015 Act) - statutory authority to mitigation and adaptation plans envisaged in the National Policy Position
- National Adaptation Framework (NAF), which was developed and approved in accordance with Section 5 of the 2015 Act
- Climate Action Plan to Tackle Climate Disruption



Climate Change Advisory Council Review



Climate Change Advisory Council (CCAC) Adaptation Committee established in 2016

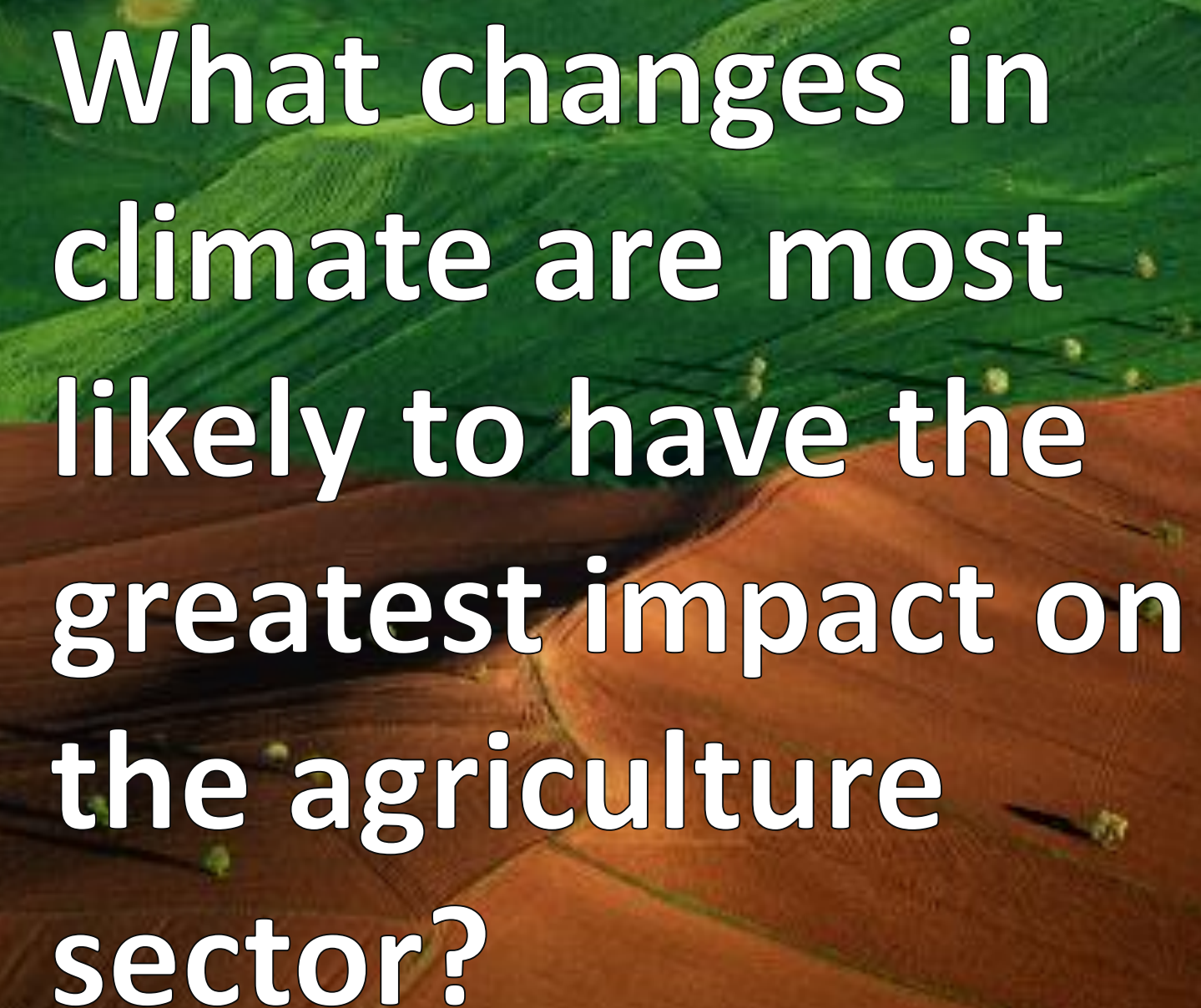
- **July 2019 Annual Review** - adaptation is a continuous learning and improvement process
- **December 2019** – review of statutory sectoral adaptation plan making published in December 2019



Land and Climate Change



- Land provides the principal basis for human livelihoods and well-being including the supply of food.
- It is both a source and a sink of GHGs, and land ecosystems and biodiversity are vulnerable to ongoing climate change, and weather and climate extremes.
- Sustainable land management can contribute to reducing the negative impacts of multiple stressors, including climate change, on ecosystems and societies.



What changes in climate are most likely to have the greatest impact on the agriculture sector?

IPCC, 2019: Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems

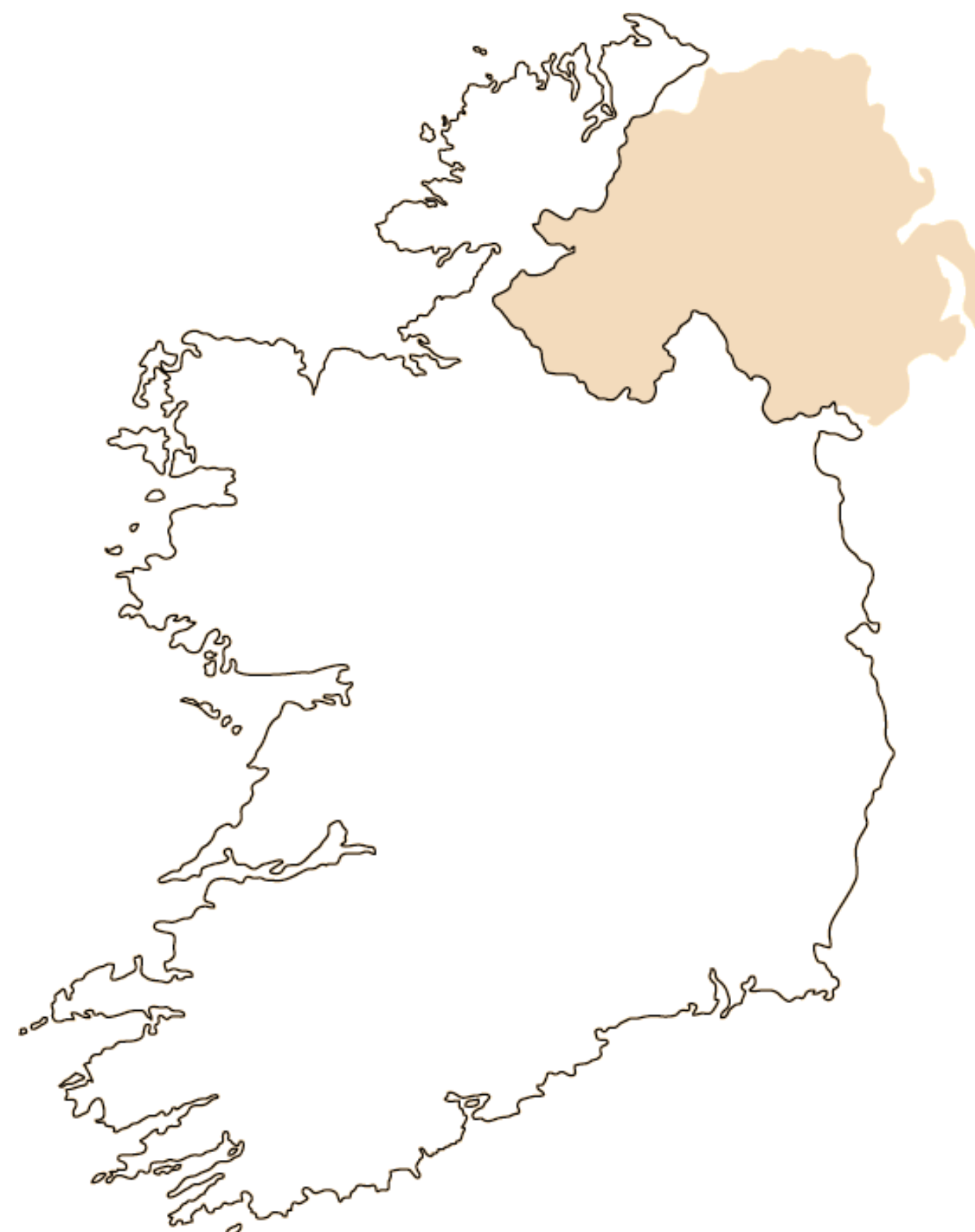
Projected Changes in Ireland's Climate



Drier Summers

Wetter Winters

Up to Increase
14% in winter
rainfall



**More
Intense
Storms
Predicted for Ireland**



**Average Temperature
Increase of Up To**

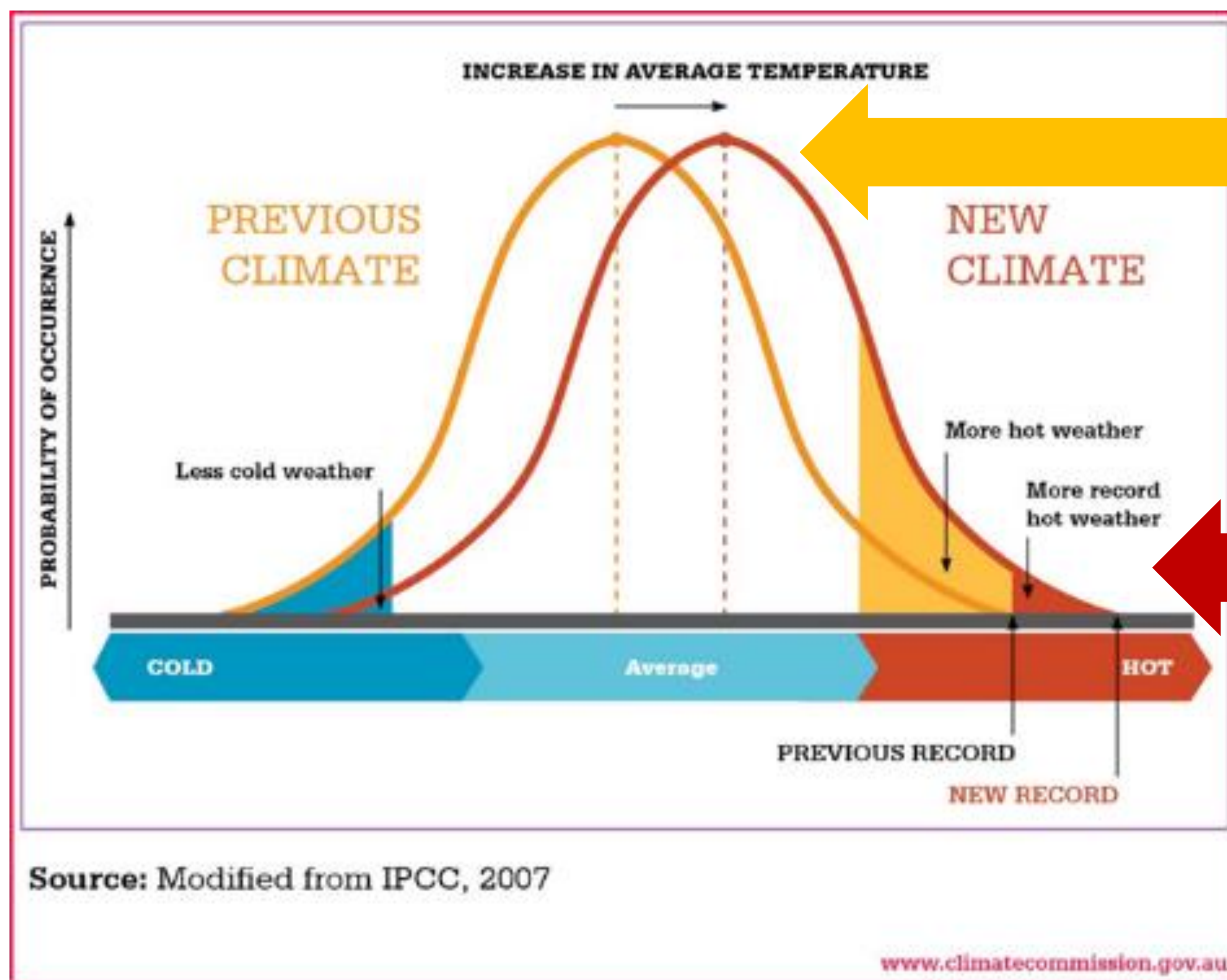
1.6° C by 2050
across Ireland



*This may look like a small change but remember...
A small change in average = big change in extremes
i.e. a rise in the number of days that are extremely hot!*

It is essential we continue to take the necessary steps to build a strong and resilient sector.

Projected Changes in Ireland's Climate



A small change in the average can cause a big change in the extremes.

Recent Weather Events



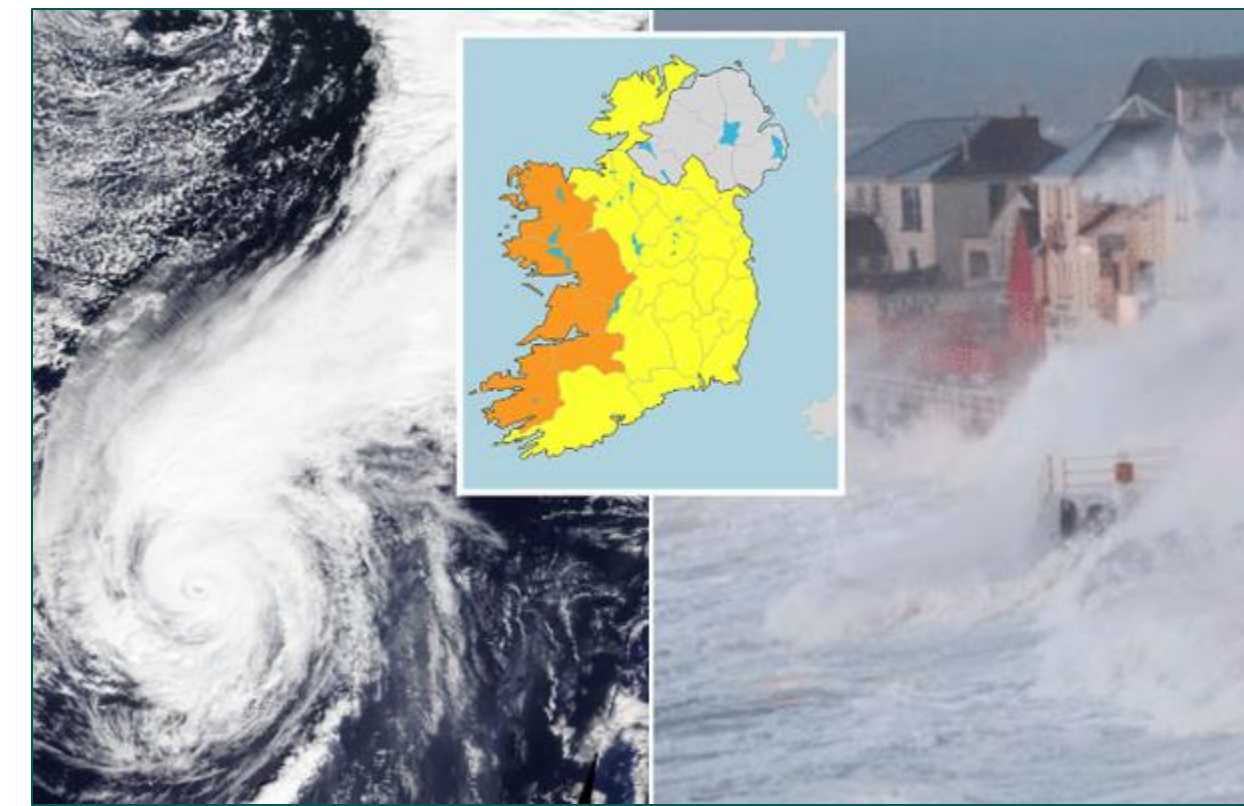
Drought – Summer 2018



An extremely dry summer badly affected grass growth giving rise to a general fodder shortage.

Stocks were already low due to the increased use of feed while livestock was indoors for longer over a long winter period that extended into spring with storm and snow conditions. Average income across the entire sector was down 21 per cent.

Storm Lorenzo - October 2019



Some areas of north west saw between 50mm and 100mm of rain between 02 and 03 October.

Heavy rain increased levels of the River Eske in Donegal town. Media reported that around 40 homes were flooded.

Gusts of over 80 km/h. At the height of the storm, almost 20,000 homes were without power.

Recent Weather Events



Flooding - February 2020



Provisional rainfall totals for 1-24 February 2020 currently at 225% of Ireland's average.

Newport, County Mayo, recorded 283.5 mm of rain during this period.

The highest daily rainfall total was 51.5 mm on Saturday 8 February at Knock Airport, County Mayo.

Landslide - July 2020



Tonnes of peat slid down the Shass Mountain above the Dawn of Hope Bridge covering acres of farmland.

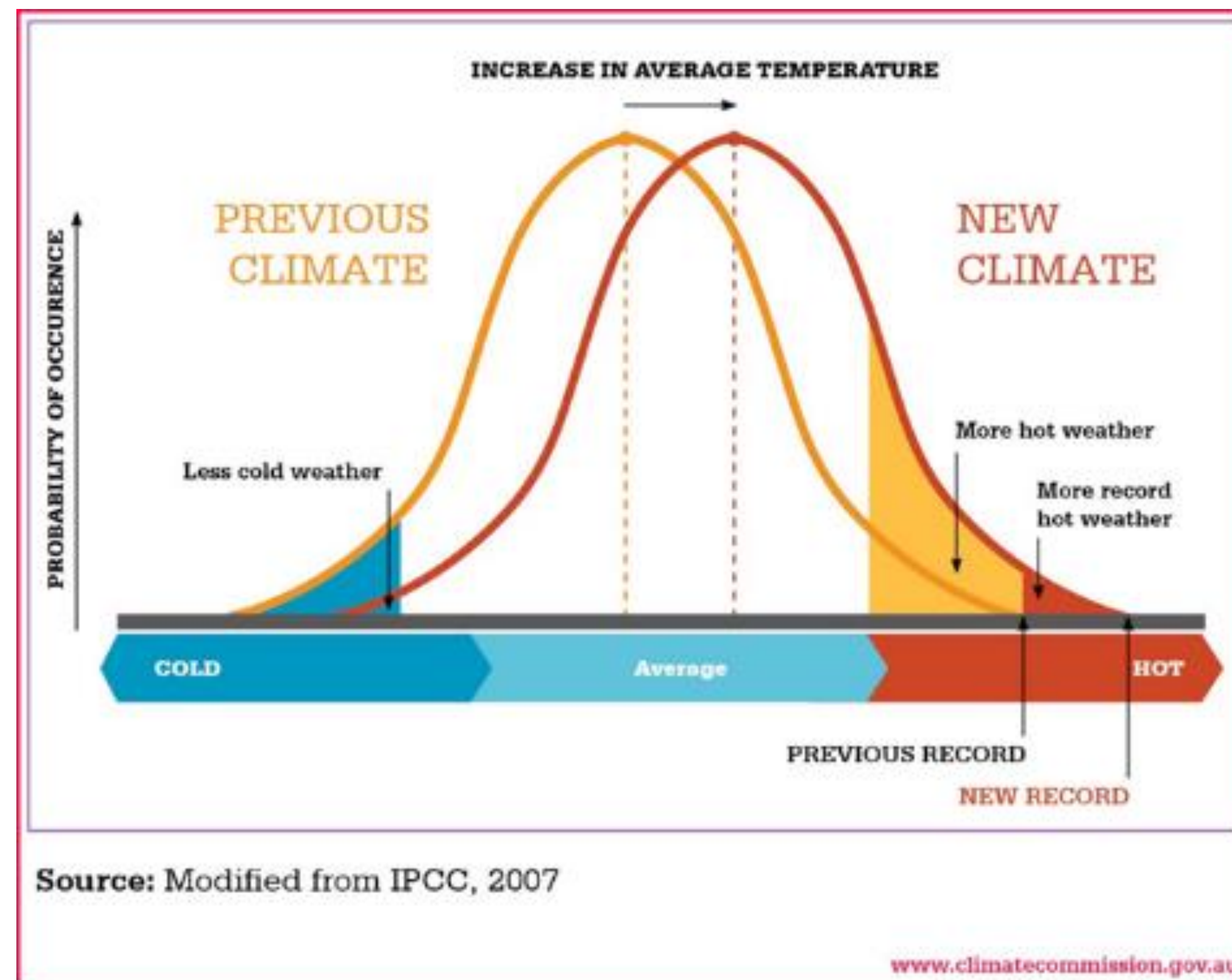
It appears that during the good weather in the spring, the bog on the mountain dried out, leaving cracks or fissures.

These filled with water during torrential rain and the bog started to move.

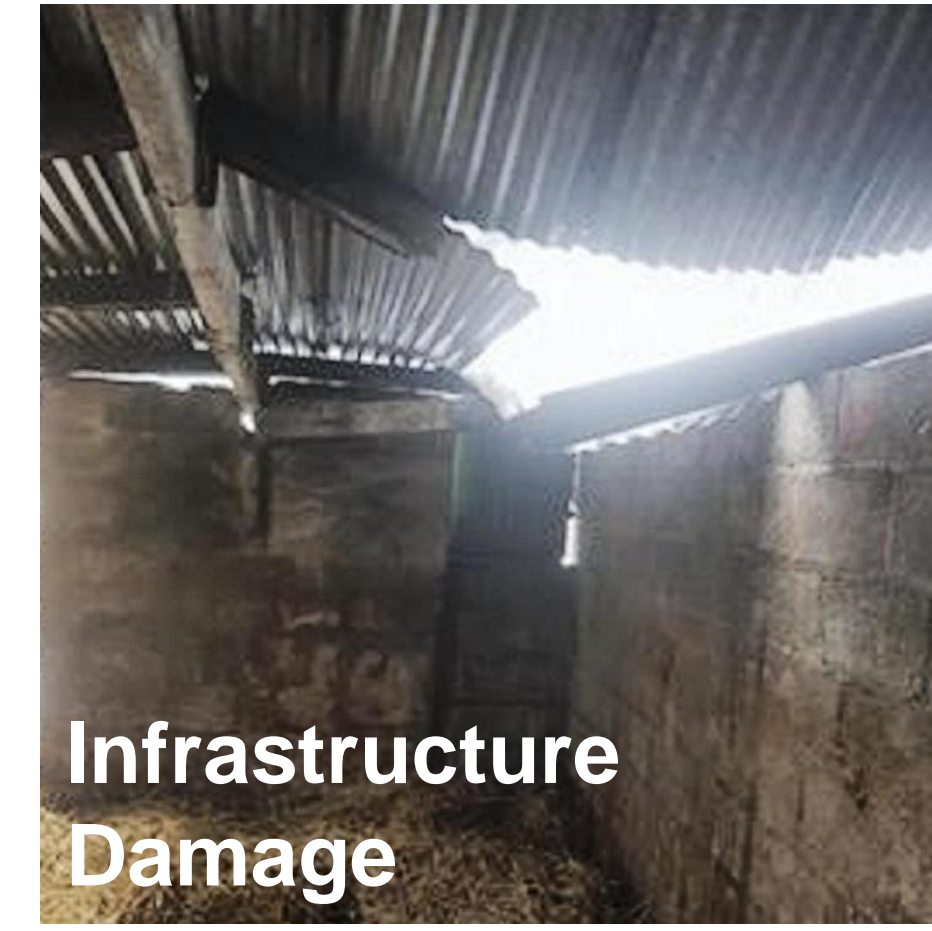
Again, Small Changes Can Have A Big Impact



- As little as 300mm of fast-flowing water can move most cars off the road.
- Just 150mm of fast-flowing water can knock you off your feet.
- Unfavourable climate events are going to be more frequent and more extreme.



Priority Impacts in Agriculture

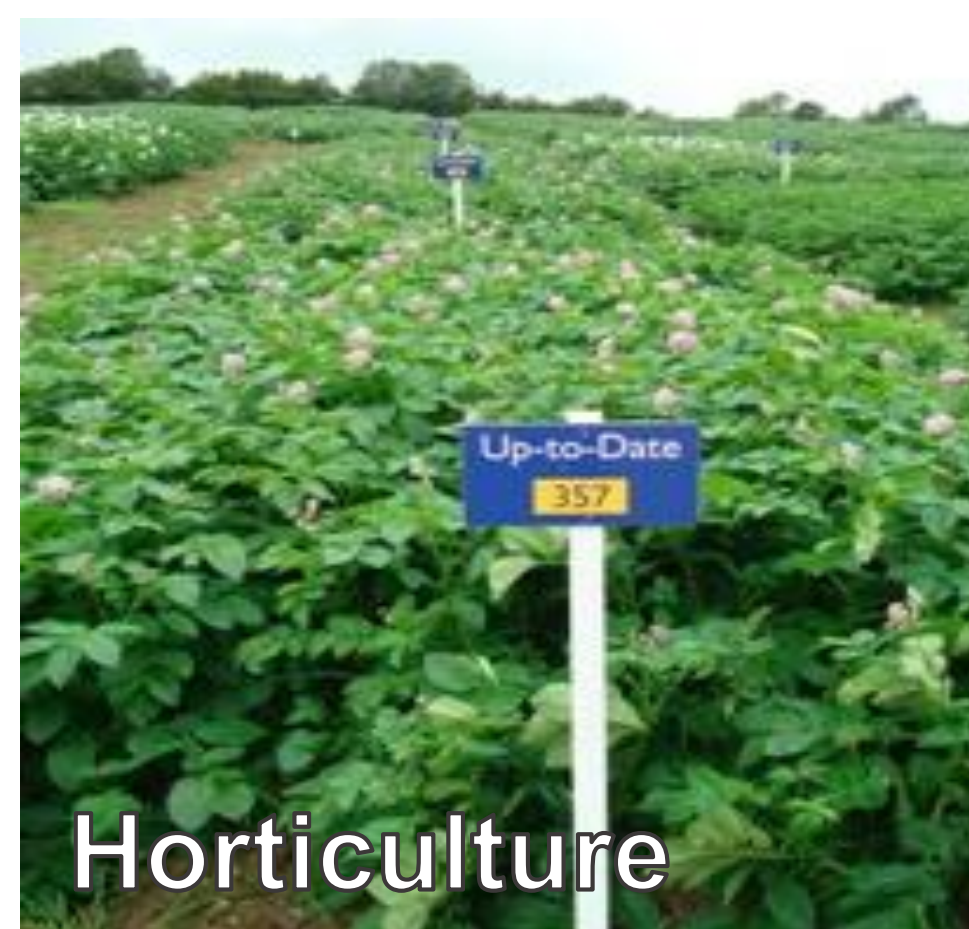


Cross Sectoral Adaptation Issues

- Intensification of agriculture putting pressure on our environment, in particular water quality
- Land use options are not always correct for soil type
- Biodiversity is suffering as a result of intensification and monocropping
- Farm infrastructure may be inadequate for future climate scenarios
- Increased intensity of rainfall threatens soil function and ability to retain nutrients.



Adaptation Case Studies



Sustainable Adaptation Measures



- Use of nature-based solutions approach to adaptation e.g. Hedgerows provide shelter to protect crops from cold and heat; create biodiversity hot spots which can host natural enemies of pests
- Improving soil structure as a way of facing the challenges of climate change
- Use of catch crop mixtures with different characteristics e.g. root development, resistance to pest and disease, different nutrient requirements
- Adapt sowing dates
- Species and varieties selection
- New agricultural techniques and products – e.g. use of precision agriculture tools suited to a particular type of terrain
- Build fodder reserves
- Early warning system to identify deficits in feed

Mitigation Measures with Adaptation



- Use of mixed species swards and leguminous crops more resilient to increased temperatures



- Promoting sustainable animal health and welfare practices e.g. adequate housing and shelter during heat waves



- Maximimising grazing efficiency through recording grass production while incorporating data into feed deficit early warning systems



- Properly sited and designed slurry stores to prevent run-off

Conclusion

- We are already experiencing the negative impacts of climate change.
- Climate change amplifies the existing risks and creates new ones.
- Adaptation is not an alternative to mitigation, but an essential component in our efforts to reduce the impacts of climate change.
- Well planned, early adaptation done right saves money, protects nature and helps to prevent disruption later.





Thank you

Adapting to the Impacts of Climate Change in the Agriculture Sector

Damien Wyse

7 August 2020

damien.wyse@agriculture.gov.ie