



Funding Climate Adaptation in Ireland



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Abbreviations

CSDDD	Corporate Sustainability Due Diligence Directive
CSO	Central Statistics Office
EPA	Environmental Protection Agency
GDP	Gross Domestic Product
GNI*	Modified Gross National Income
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
ISEP	Institute of Sustainability and Environmental Professionals
NCCRA	National Climate Change Risk Assessment
NESP	National Environmental Science Program
NGFS	Network for Greening the Financial System
OECD	Organisation for Economic Co-operation and Development
RCP	representative concentration pathway
SBCI	Strategic Banking Corporation of Ireland
SEAI	Sustainable Energy Authority of Ireland
SMEs	small and medium-sized enterprises
SSP	shared socioeconomic pathways
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change

Summary

This joint report by the Central Bank of Ireland and the Climate Change Advisory Council sets out the need to increase adaptation investment and finance in Ireland. It identifies the barriers to increasing climate adaptation investment and proposes actionable solutions to address these challenges.¹



The urgency of climate adaptation

Investment in climate adaptation remains below the levels needed to address escalating risks posed by climate change. The shortfall is particularly concerning as global climate mitigation efforts continue to fall behind target.

The economic costs of inaction are rising with extreme weather events such as floods and storms causing increasing economic losses, disrupting communities, and placing a burden on public resources. Without action, these impacts will intensify, testing Ireland's economic and financial resilience.

Climate adaptation projects, which reduce vulnerability and minimise climate risks are essential to address these challenges. Ranging from flood-resilient infrastructure and storm-resistant coastal defences to drought-resistant crops and nature-based solutions to early warning systems, these projects are critical for achieving Ireland's National Climate Objective of becoming a climate-resilient society by 2050.

The role of finance in climate adaptation

Finance plays an important role in enabling climate adaptation investment, yet international evidence suggests that a lack of finance remains a significant barrier. While the current volume of

¹ The authors would like to express their gratitude to all those who contributed to the development of this report and offer special thanks the reviewers for their invaluable insights and expertise. We also extend our appreciation to colleagues at the Climate Change Advisory Council and Central Bank of Ireland for their support and collaboration throughout the process.



adaptation finance is difficult to measure, it must scale to support the investments needed to protect communities, businesses, and ecosystems from climate risks. Adaptation finance must flow through both public and private channels to close this gap:

- ➔ **Public Finance:** Governments play a critical role in funding large-scale infrastructure projects, providing targeted grants, and creating enabling conditions for private investment.
- ➔ **Private Finance:** Institutional investors, banks, insurers, households, and businesses must be mobilised to fund adaptation projects, but this requires addressing barriers such as the lack of information on required adaptation steps, lack of investor ready projects, and uncertain financial returns.

Without considerable progress in scaling investment in adaptation, Ireland risks falling behind in building the resilience needed to withstand future climate shocks.

Economic and Financial Imperative

Investing in climate resilience will deliver substantial economic and financial benefits. Adaptation measures reduce the losses from floods and extreme weather, safeguard jobs and productivity, and protect household wealth, which in Ireland is concentrated in physical assets such as homes. For the financial system, adaptation investments preserve asset values, reduce loan defaults, reduce insurance losses, and preventing properties and business assets from becoming stranded or uninsurable. Additionally, these investments support vulnerable communities to avoid the worst climate impacts and enable faster recovery after extreme events. This lowers systemic risks for banks and insurers, reduces the State's fiscal burden for emergency relief, and bolsters investor confidence.

Barriers to Adaptation Finance

There are a number of challenges to scaling the flow of public and private finance towards climate adaptation projects. Demand side challenges include:

- ➔ **Lack of information:** Limited access to clear, local and sector specific data on current and future climate risks makes it difficult to identify and prioritise adaptation projects.



- ➔ **High upfront costs:** Adaptation investments often require significant upfront funding, with long-term and uncertain benefits that may not provide the quick or high rates returns typically needed to justify investment.
- ➔ **Fragmented Access to Finance:** Navigating fragmented funding mechanisms involves high search costs and significant administrative overheads deterring resource-constrained applicants from pursuing finance and grants.

Supply side challenges for adaptation finance include:

- ➔ **Risk appetite:** Even after adaptation measures are implemented, some risks can still fall outside the private sector risk appetites (e.g. flood gates requiring manual interventions to activate the defence may be insufficient to attract insurance cover).
- ➔ **Creating investable projects:** Many adaptation projects lack direct financial returns, with benefits that are intangible, uncertain or difficult to measure making them less attractive to private investors (unlike other resilience investments such as cybersecurity).
- ➔ **Small scale projects:** Localised adaptation projects often lack the scale required to attract large institutional investors or capital market funding, leaving funders heavily reliant on government grants or retail lenders. This reliance can limit the availability of financing, if suitable products are not available.
- ➔ **Evolving solutions and planning:** New adaptation solutions can lead to higher transaction costs and complexity due to a lack of established business models. In addition, the planning process for undertaking infrastructural projects can add time, risk, and expense to projects.

Proposed Solutions to Scale Adaptation Finance in Ireland

The report identifies actions to overcome barriers and accelerate adaptation investment and finance, including increasing demand, scaling available finance, attracting private investment, improving access to funding, and fostering public-private collaboration. Priority actions include:



- ➔ **Register of Successful Adaptation Projects:** Develop a database of effective adaptation projects and finance models, capturing examples across various scales, sectors, and locations, including examples from local authority level.
- ➔ **Comprehensive Assessment of Investment Needs:** Conduct a detailed assessment of short- and long-term investment costs, clearly defining public and private sector funding roles, engaging stakeholders to ensure realistic estimates and establishing a framework for regular updates and monitoring.
- ➔ **Promote Transition Planning:** Encourage small and medium-sized enterprises (SMEs), corporates and financial institutions to integrate adaptation into transition plans alongside climate neutrality targets. This should include assisting customers to seek financial solutions for climate adaptation projects.
- ➔ **Addressing Insurance Protection Gaps:** As set out in the Irish Government Action Plan for Insurance Reform², develop a long-term strategic approach to climate insurance, enhance public and insurance sector data sharing, and ensure insurers have a clearer recognition of adaptation measures. It is critical to mitigate moral hazard by complementing insurance measures with continued investment in adaptation and resilience to climate events.
- ➔ **National Adaptation Finance Strategy:** Create a strategy to attract private and EU funding, reducing long-term pressure on government finances. This should build on improved estimates of long-term investment needs and include mechanisms such as government financing approaches, concessional finance, risk mitigation mechanisms, aggregated project structures, and supports for local authorities to leverage European funding mechanisms.

The full list of proposals can be found in [Section 4](#) of the report.

As climate risks grow and economic losses increase, Ireland must act to close the adaptation investment gap. By addressing barriers, mobilising public and private finance, and implementing innovative solutions, Ireland can build a more resilient economy and society while reducing risks to the financial system.

² [Action Plan for Insurance Reform: July 2025](#)



1. The Business Case for Adaptation

Adaptation aims to ensure that we are better prepared to respond to both current and future climate change. Investing in climate adaptation will deliver substantial economic and financial benefits. These investments will support vulnerable communities in avoiding the worst climate impacts and enabling faster recovery after extreme events.



The importance of climate adaptation is growing as global climate mitigation efforts are not on track to meet emissions reduction targets. In Ireland, recent storms, including Storm Darragh and Storm Éowyn, have exposed vulnerabilities to extreme weather and revealed gaps in preparedness. Storm Éowyn, an exceptionally powerful extratropical cyclone that hit Ireland in January 2025, caused widespread disruption, leaving 768,000 premises without power, over 200,000 premises without water, and over 1 million telecom users with no internet or phone coverage.^{3, 4, 5} The final insurance claims for damages were €301 million⁶, making it the most expensive weather event in Irish insurance history.

Overall, economic losses in Ireland from flood and windstorm events in 2024 - covering both direct and indirect costs - was €1.6 billion and €2.5 billion, respectively (Figure 1).⁷ While long term estimates of the economic costs are not available, the costs have been growing in recent years by over 8% per year between 2022-2024.^{8, 9}

³ [Update from ESB Networks on Power Restoration](#)

⁴ [Water supply returned to additional 55,000 people since yesterday | News Updates | Uisce Éireann](#)

⁵ [Storm Éowyn was most expensive weather event in history for Irish insurers, costing €301m - The Irish Times](#)

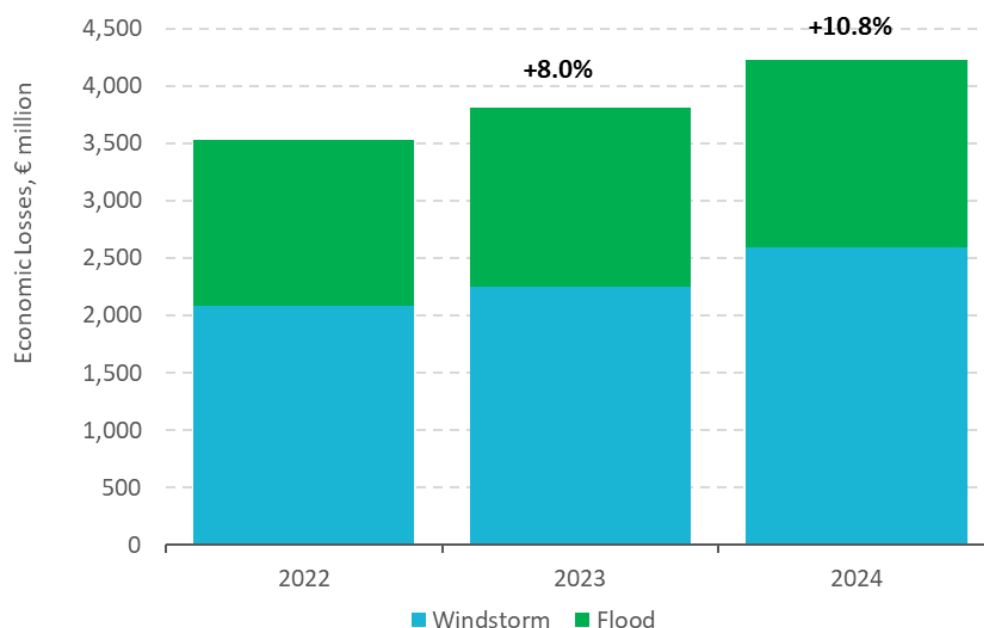
⁶ <https://www.irishtimes.com/business/2025/08/15/storm-eowyn-was-most-expensive-event-in-history-for-irish-insurers-final-bill-shows/>

⁷ The full scale of losses is likely higher if the more difficult to measure impacts such as wellbeing, health, and environment are fully captured.

⁸ [Chapter 11: Weather and Climate Extreme Events in a Changing Climate](#)

⁹ [Economic losses from weather- and climate-related extremes in Europe | Indicators | European Environment Agency \(EEA\)](#)



Figure 1. Irish Economic losses by peril

Source: European Insurance and Occupational Pensions Authority Dashboard on insurance protection gaps¹⁰

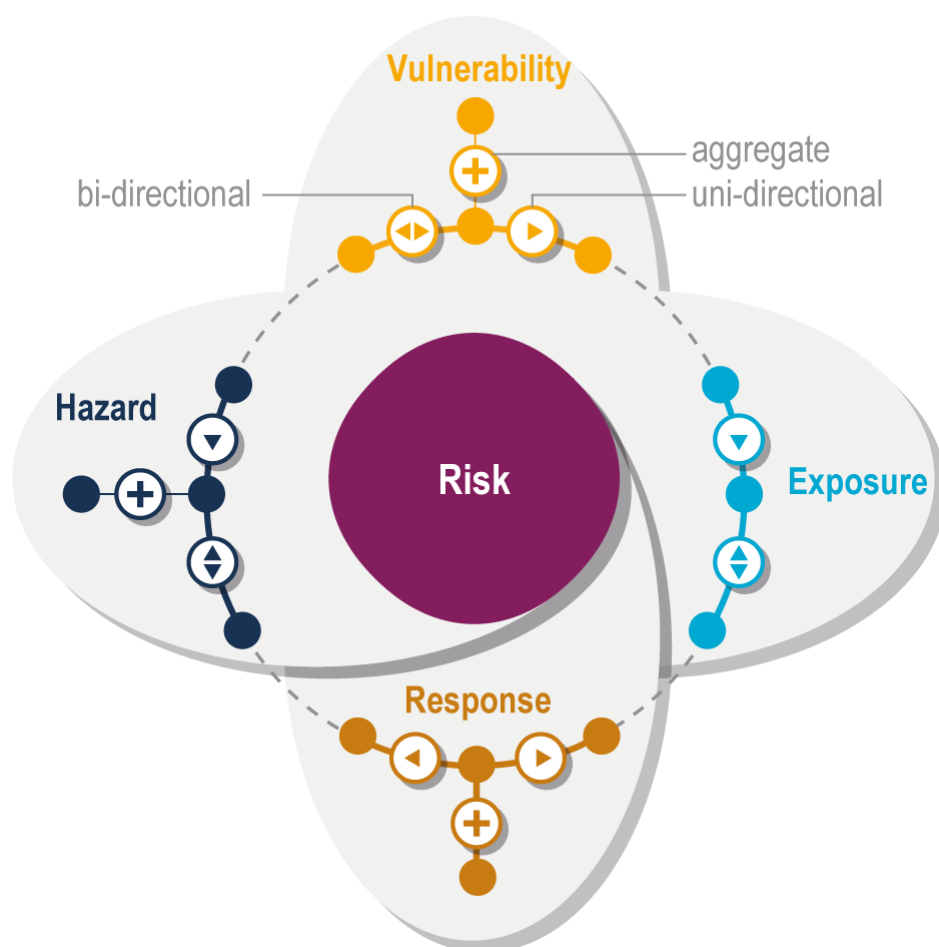
1.1 From climate risk to effective climate action

Effective climate action begins with understanding climate risks, including physical and transition risks. Transition risks are associated with moving to a low carbon economy. Physical climate risk results from interactions between climate-related hazards (e.g. the frequency and intensity of droughts) with exposure (e.g. agriculture land) and vulnerability (e.g. drought resistance of crops, presence or absence of irrigation) of natural and human systems.¹¹ These risks can be reduced or managed by a relevant response such as, in this example, irrigation or introduction of more drought resistant crop species. The Intergovernmental Panel on Climate Change (IPCC) sets out this relationship in Figure 2.

¹⁰ Dashboard on insurance protection gap for natural catastrophes - EIOPA

¹¹ Discover the key services, thematic features and tools of Climate-ADAPT

Figure 2. Risk is a result of the interaction of climate-related hazards with the vulnerability, exposure of human and natural systems, and response



Source: IPCC Sixth Assessment, Figure 1.5b¹²

Ireland's first National Climate Change Risk Assessment (NCCRA), published in June 2025, identified 115 climate-related risks across 9 systems, with 43 risks considered significant.¹³ The assessment highlighted climate hazards including flooding, coastal erosion, heatwaves, and extreme weather events, which pose serious risks to communities, infrastructure, ecosystems, and the economy. The NCCRA calls for the integration of climate risk consideration into decision-making across government, business, and civil society to build resilience. In this context, resilience refers to the ability of a social or ecological system to absorb disturbances while retaining the same basic ways of functioning, and a capacity to adapt to stress and change.¹⁴ It focuses on understanding climate-related risks and vulnerabilities and implementing measures to manage these risks effectively.

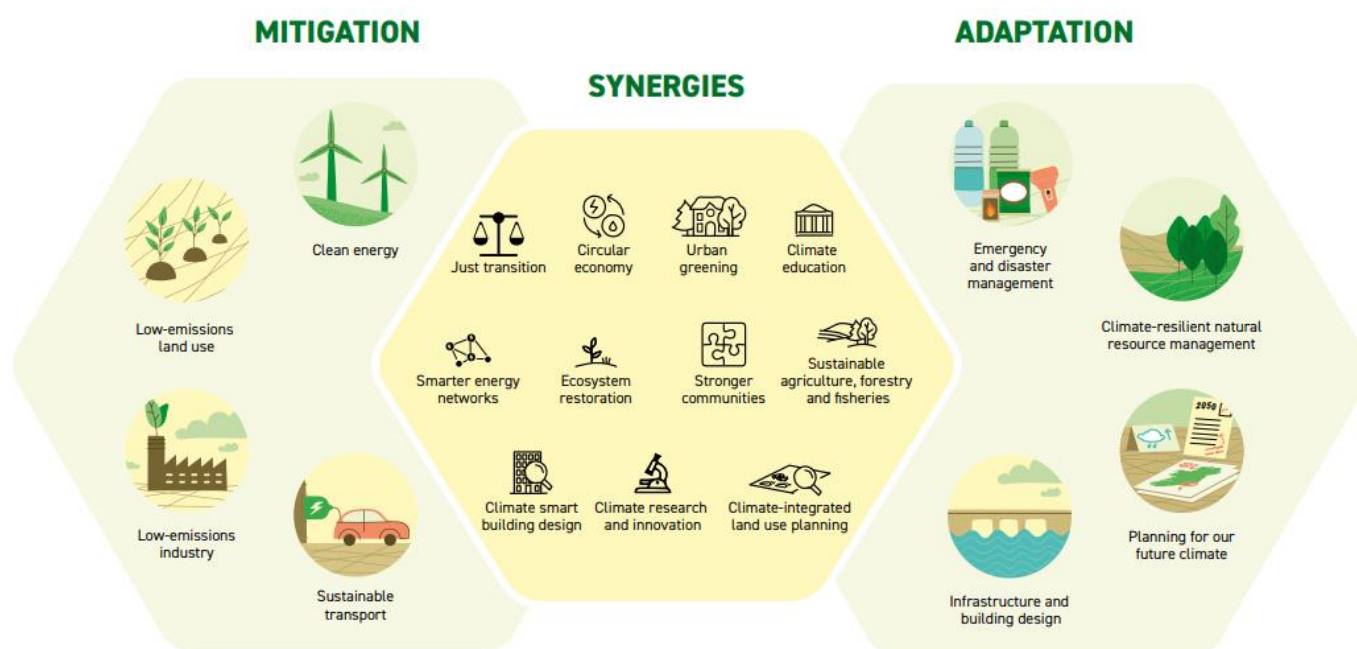
¹² [Climate Change 2022: Impacts, Adaptation and Vulnerability | Climate Change 2022: Impacts, Adaptation and Vulnerability](#)

¹³ [EPA Climate Ireland | National Climate Change Risk Assessment](#)

¹⁴ [National Adaptation Framework \(NAF\)](#)

To achieve effective climate resilience, mitigation and adaptation need to be addressed as interlinked components of climate action. Figure 3 maps the synergy space and co-benefits of resilience thinking by considering them in tandem. Some mitigation measures may conflict with adaptation needs, and vice versa. Therefore, it is important to consider both the co-benefits and potential maladaptive impacts of adaptation and mitigation when planning climate actions.¹⁵ Capturing the full benefits of adaptation action, combined with mitigation measures, includes accounting for avoided losses (e.g. property damage from storm events or flood damage to critical infrastructure), long-term risk reduction and resilience building (e.g. stronger supply chains), and co-benefits that are harder to capture in monetary terms such as stronger communities and ecosystem restoration.

Figure 3. Opportunities for synergies and co-benefits from integrated adaptation and mitigation actions.



Source: Climate Change Advisory Council Annual Review 2023.¹⁶ Adapted from New South Wales Government, *why adapt to climate change?*

The private and public sectors are taking action to invest in adaptation in response to climate-related risks and impacts. However, these actions are not always clearly visible or recorded, as climate change is often only one of many drivers for acting.^{17, 18} Additional drivers include accelerating technological change, increasing scarcity and global competition for resources, and

¹⁵ G-20 Sustainable Finance Working Group input paper: Integrating adaptation and resilience into transition plans

¹⁶ CCAC Annual Review 2023

¹⁷ *Rising to the Challenge - Climate Adaptation and Resilience*

¹⁸ Estimating current and future adaptation costs to the UK;
<https://obr.uk/box/estimating-current-and-future-adaptation-costs-to-the-uk/>

increased urbanisation.¹⁹ The complexity and diversity in drivers of adaptation make it challenging to measure the exact flow and future needs of adaptation financing.

The legal basis and legislative requirements for undertaking adaptation measures also provide an important lever for action and for assessing appropriate levels of risk management. Ireland's National Climate Objective obliges the State to pursue and achieve a climate resilient economy by 2050. The Climate Amendment Act (2021) establishes the legal basis for the National Adaptation Framework and Climate Change Sectoral Adaptation Plans, specifying the policy measures needed to enable adaptation to climate change.²⁰

Realising the required adaptation projects and actions, including those articulated in Local Authority Climate Action Plans, the Programme for Government, private sector transition plans and forthcoming revised Climate Change Sectoral Adaptation Plans, will require significant financial investment by both the public and private sectors.

1.2 Adaptation projects build resilience

Adaptation projects implement actions that reduce vulnerability and minimise climate risks. Such projects need to be delivered by both the public and private sector and can vary significantly in size and scale. Examples include:

- ➔ **Flood-resilient infrastructure:** developing flood defences, combining traditional "grey defences" (e.g., flood barriers) with nature-based solutions such as wetland restoration and sustainable drainage systems (SUDs).
- ➔ **Coastal defences:** protecting against rising sea levels, coastal erosion, and storm surges through measures including seawalls, dune restoration, and land use change or relocation.²¹
- ➔ **Urban heat resilience:** implementing green infrastructure such as rooftop gardens, tree planting, and permeable pavements to reduce heat stress in cities.
- ➔ **Financial resilience:** expanding the availability of insurance products and risk-sharing mechanisms tailored to Irish businesses and households, particularly for flood-prone areas.

¹⁹ [Drivers of change: challenges and opportunities for sustainability in Europe | Sustainability challenges | European Environment Agency \(EEA\)](#)

²⁰ [Climate Action and Low Carbon Development \(Amendment\) Bill 2021](#)

²¹ [Using Key Type Measures to report climate adaptation action in the EEA member countries – Eionet Portal](#)



- ➔ **Agricultural adaptation:** supporting farmers in adopting drought-resistant crops, improved irrigation systems, and soil management practices to address risks such as prolonged dry spells and changing rainfall patterns.
- ➔ **Business continuity planning:** adapting business operations and supply chains to manage climate risks and developing transition and adaptation plans that include measures such as relocating critical infrastructure or diversifying suppliers.

Delivering adaptation projects is essential to achieve Ireland's National Climate Objective of becoming a climate-resilient society by no later than 2050.²² Importantly, the financial risks and impacts resulting from climate change will need to be managed both before and after 2050. Delivering on adaptation in advance of 2050 is crucial, as is continuing adaptation and resilience planning beyond this date.

1.3 Greening the financial system

Climate adaptation and climate resilience is of high interest to central banks, supervisors, and the financial system. The Network for Greening the Financial System (NGFS) has developed a framework to explain how climate change drives physical risk events, their subsequent economic and financial impacts, and how adaptation measures can mitigate the impact (Figure 4). Physical risks, such as extreme weather events and rising sea levels, affect asset values, income streams, and the broader economic environment, creating systemic risks for the financial system.

Insufficient adaptation amplifies the economic costs of climate events, including supply chain disruptions and infrastructure damage, which can lead to inflation volatility and financial instability. To address these risks, the NGFS outlines two key types of adaptation:

- ➔ **Macro-Level Adaptation:** Large-scale government strategies aim to protect communities and critical infrastructure from climate perils.
- ➔ **Micro-Level Adaptation:** Firms and individuals implement measures, such as flood resilience upgrades, to improve household and asset-level resilience.

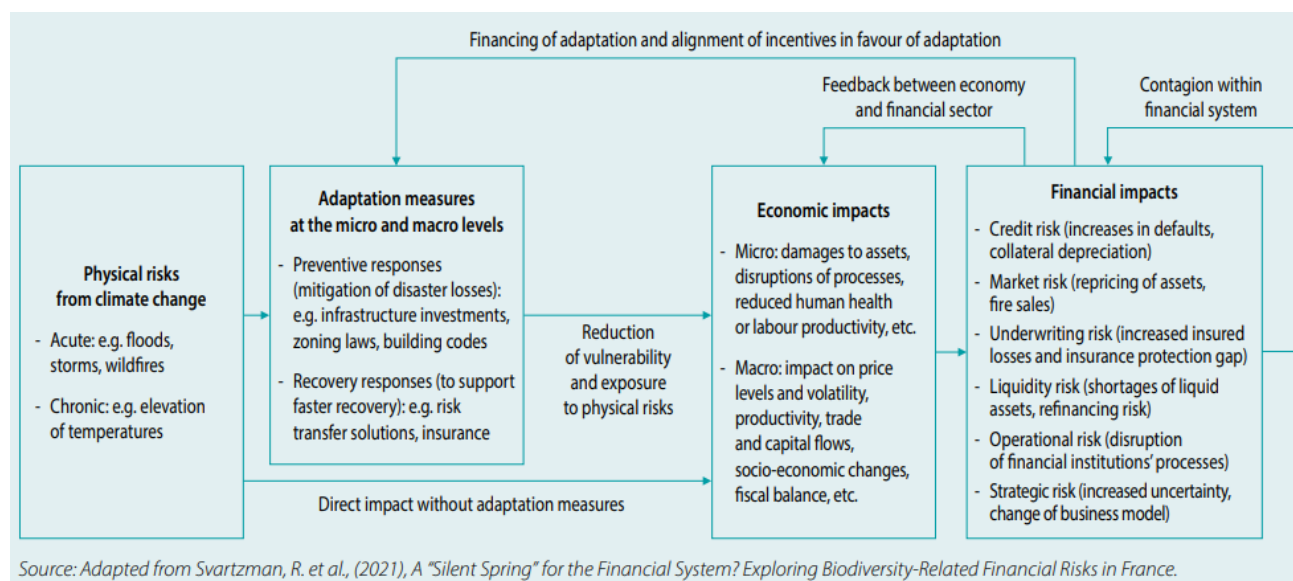
Together, these adaptation measures reduce physical risks, which in turn mitigate economic and financial risks, fostering greater resilience within the financial system.

²² [National Climate Policy](#)



Beyond building financial resilience, the financial sector plays a crucial role in financing adaptation efforts, ensuring that both macro- and micro-level initiatives are adequately supported.

Figure 4. Financing of adaptation measures reduces vulnerability and physical risk exposure



Source: Network for Greening the Financial System, "Conceptual Note on Adaptation", November 2024.²³

2. Climate Finance Needs and Costs of Inaction

Significant investment in climate adaptation is essential to address escalating risks and reduce the economic costs of inaction. Developing clear cost estimates for both the required investments and the potential costs of inaction, along with defining the roles of public and private finance, is vital to inform decision-making and resource prioritisation.

The global adaptation finance gap is estimated to be between US\$187 billion and US\$359 billion per year, representing the shortfall between the actual international public finance flows and the estimated needs for adaptation.²⁴ While this finance gap primarily concerns developing countries, there are no comprehensive estimates available for developed (or Organisation for Economic Co-operation and

²³ Conceptual Note on Adaptation

²⁴ Adaptation Gap Report 2024 | UNEP - UN Environment Programme

Development (OECD)) countries as a group. However, extrapolation from developed country examples provides an indicative range for short-term investment needs in Ireland.²⁵

2.1 Estimates of adaptation investment needs

Businesses are increasingly exposed to physical risks from climate change, with global financial costs projected to reach \$25 trillion globally in 2025 under the 2.7°C temperature rise scenario by the end of the century.²⁶ Despite the favourable cost-benefit ratios for adaptation spending, ranging from 2:1 to 12:1 depending on estimates, only 35% of businesses worldwide currently have an adaptation plan in place (see Table 1).²⁷

Table 1. Cost-benefit ratios for adaptation spending

Study	Ratio or Return	Details
Global Commission on Adaptation ²⁸	Range of 2:1 to 10:1	Dependent on the intervention, and considering the triple dividend of avoided losses, economic benefits, and social and environmental benefits
World Bank ²⁹	4:1	Investment in resilient infrastructure in low-and middle-income countries
Standard Chartered ³⁰	12:1	Investments in adaptation this decade

Identifying where adaptation finance is needed is essential yet estimates of future investment requirements in Ireland are not currently available. Due to the difficulties in defining adaptation needs, acceptable residual risks and methodologies for calculating risks, this is a challenge that is not unique to Ireland.³¹

²⁵ [Pathways2Resilience](#)

²⁶ In 2014, the Intergovernmental Panel on Climate Change began using 4 scenarios known as Representative Concentration Pathways (RCPs). These four big picture climate scenarios include a rapid action, low emissions scenario (RCP 2.6), two scenarios with some action and medium emissions (RCP 4.5 and 6.0), and a limited action scenario with high emissions (RCP 8.5). Of the four scenarios, only RCP 2.6 is compatible with the Paris Agreement of holding climate change under 2°C. The planet is currently tracking towards somewhere between RCP 2.6 and RCP 4.5, which translates to about 2.7°C of warming by 2100.

²⁷ [NGFS Input paper on Integrating Adaptation and Resilience into Transition plans | Network for Greening the Financial System](#)

²⁸ [Global leaders call for urgent action on climate adaptation; commission finds adaptation can deliver \\$7.1 trillion in benefits](#)

²⁹ [\\$4.2 Trillion Can Be Saved by Investing in More Resilient Infrastructure, New World Bank Report Finds](#)

³⁰ [Guide for Adaptation and Resilience Finance | Standard Chartered](#)

³¹ See UNFCCC (2022) for discussion on methodologies.



Tracking existing and past climate adaptation investments is also problematic due to limitations in data categorisation within the public and private sectors. The absence of detailed tagging and monitoring hampers efforts to quantify the financing required to address Ireland's adaptation needs, leaving a significant gap in understanding the true extent of the investment challenge.

To estimate annual investment needs in the short term, findings from various national and international studies have been adapted to the Irish context. While adaptation needs are country specific, these approaches are commonly used in the absence of detailed national studies.^{32, 33, 34} Estimates suggest annual adaptation expenditure needed in Ireland could range from as low as €250 million per year to as much as €2.2 billion per annum up to 2030.

It's important to note that compounding and cascading risks and associated impacts, including transboundary risk³⁵, will increase the magnitude of costs, so any cost estimates must be considered as the lower bound of estimation.³⁶

Costs are expected to rise significantly post-2030, and a potential shift from public sector to private sector responsibility is also forecast. For example, Watkiss (2022) highlights that in the UK, current climate risks are dominated by public risks, with 9 out of 12 high or very high risks requiring public ownership.³⁷ For the 2050s, 12 of the 21 risks rated as high or very high are considered private risks. This trend indicates that while current climate risks are primarily reliant on public finance, an increasing number of risks will require private financing in the future.

³²<https://www.ecb.europa.eu/pub/pdf/scpwps/ecb.wp3005~35f938a452.en.pdf>

³³ <https://www.theccc.org.uk/wp-content/uploads/2023/01/The-Costs-of-Adaptation-and-the-Economic-Costs-and-Benefits-of-Adaptation-in-the-UK-Paul-Watkiss.pdf>

³⁴ <https://www.elibrary.imf.org/view/journals/066/2022/002/article-A001-en.xml>

³⁵ Compound events refer to the combination of multiple drivers and/or hazards that contribute to societal or environmental risks. Cascading impacts from extreme weather/climate events occur when an extreme hazard generates a sequence of secondary events in natural and human systems that result in physical, natural, social or economic disruption, whereby the resulting impact is significantly larger than the initial impact.

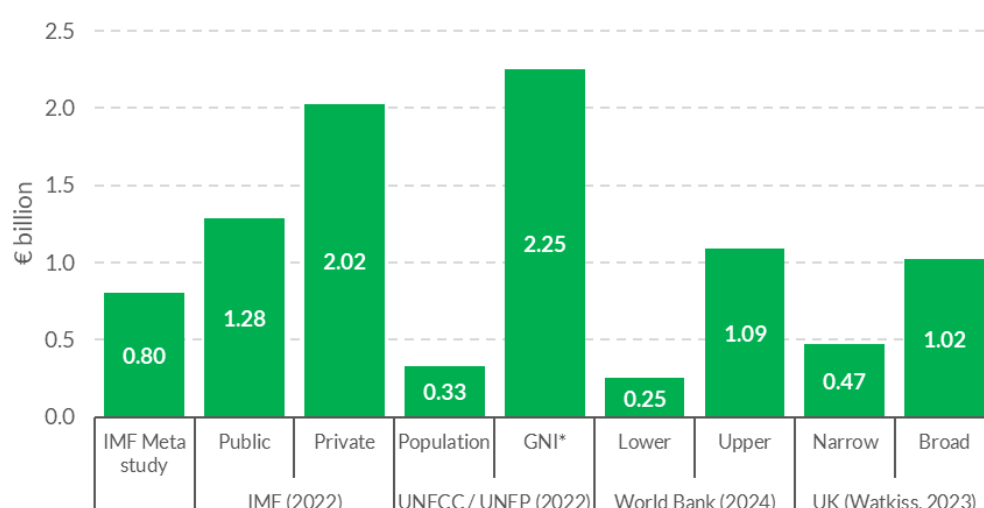
Transboundary climate risks (TCRs) are climate risks that cross national borders.

³⁶ [Assessment on prioritising transboundary climate risks for Ireland | SEI](#)

³⁷ [The Costs of Adaptation, and the Economic Costs and Benefits of Adaptation in the UK](#)



Figure 5. Annual Costs of Adaptation in Ireland to 2030: Translation of International Adaptation Studies to Ireland



Notes: Estimates are scaled to Ireland based on GNI* except for UNFCC estimates which provide both GNI* and population estimates.³⁸ UNFCC estimates are based on results from upper middle income countries medium estimates as per Watkiss (2023).³⁹ IMF, International Monetary Fund; UNEP, United Nations Environment Programme; UNFCC, United Nations Framework Convention on Climate Change.

Progress has been made in integrating adaptation into Ireland's government budgetary cycle, despite the complexities in separating and apportioning funding specifically for adaptation. The 2025 Revised Estimates for Public Service reported €3.92 billion in annual expenditure that has a component deemed favourable to adaptation under the EU taxonomy for sustainable activities, up from €2.64 billion in 2024. Key items identified include flood risk management activities, housing retrofit programmes, agri-environment schemes, and various programmes related to water quality, flood forecasting and warning services, and the provision of climate services. The annual increase can however be explained by the first-time inclusion of expenditure that indirectly resulted in favourable impacts on adaptation. The report also identified €350 million of expenditure considered unfavourable to climate change adaptation, likely

³⁸ GNI* or modified GNI is Modified Gross National Income (GNI) is an indicator designed specifically to measure the size of the Irish economy by excluding Globalisation effects by excluding 1) the depreciation on Intellectual Property, 2) the depreciation on leased aircraft, and 3) the net factor income of redomiciled PLCs from Gross National Income.

³⁹ Watkiss, P. (2023). Chapter 1. Introduction and context. In online resource. United Nations Environment Programme (2023). Adaptation Gap Report 2023: Underfinanced. Underprepared. Inadequate investment and planning on climate adaptation leaves world exposed. The Adaptation Finance Gap Update 2023. Nairobi

to be an underestimate⁴⁰ reflecting the limitations of the current assessment methodology.

Calls for improvements in costs monitoring are common:

- The 2024 National Adaptation Framework outlines the importance of sufficient funding, capital investment, and public expenditure to support adaptation action.⁴¹ It calls for an assessment of investment needs for adaptation to determine the funding required and how it should be prioritised.
- The 2025 National Climate Change Risk Assessment (NCCRA) acknowledges the need for financial quantification in future⁴² to inform prioritisation of action.
- The 2025 OECD Economic Survey for Ireland calls for more comprehensive reporting on costs as well as the creation of a national climate damage register.⁴³
- The Climate Change Advisory Council has also called for the establishment of a national climate damage register to monitor the financial and spatial impacts of extreme weather events, to help support the full quantification of costs, including cascading impacts, where possible.⁴⁴

To date, a national climate damage register has not been established, and the collection of information on the impacts of extreme weather events remains fragmented across a range of stakeholders and without clear coordination. The Council has identified the need for the Government and relevant agencies to strengthen collaboration in this area and build on promising initiatives, such as the Weather Impact Register (WIRE) app, and the existing information that is collected by insurance companies as well as various semi-state companies on the costs of extreme events.

To effectively address climate adaptation needs in Ireland, it is crucial to develop comprehensive cost estimates for adaptation investments required in both the short and long term. These estimates will enable policymakers and the private sector to make informed decisions, allocate resources effectively and clarify the roles of public and private sectors in financing adaptation efforts.

⁴⁰ Unfavourable expenditure refers to fossil fuel subsidies and other potentially harmful supports in the areas of transport, agriculture and industry.

⁴¹ [national-adaptation-framework-2024-0fa761a3-84e5-4bcf-ac40-0f91f6431ae8.pdf](#)

⁴² [EPA NCCRA Main-Report Published June 2025.pdf](#)

⁴³ [OECD Economic Surveys: Ireland 2025 \(EN\)](#)

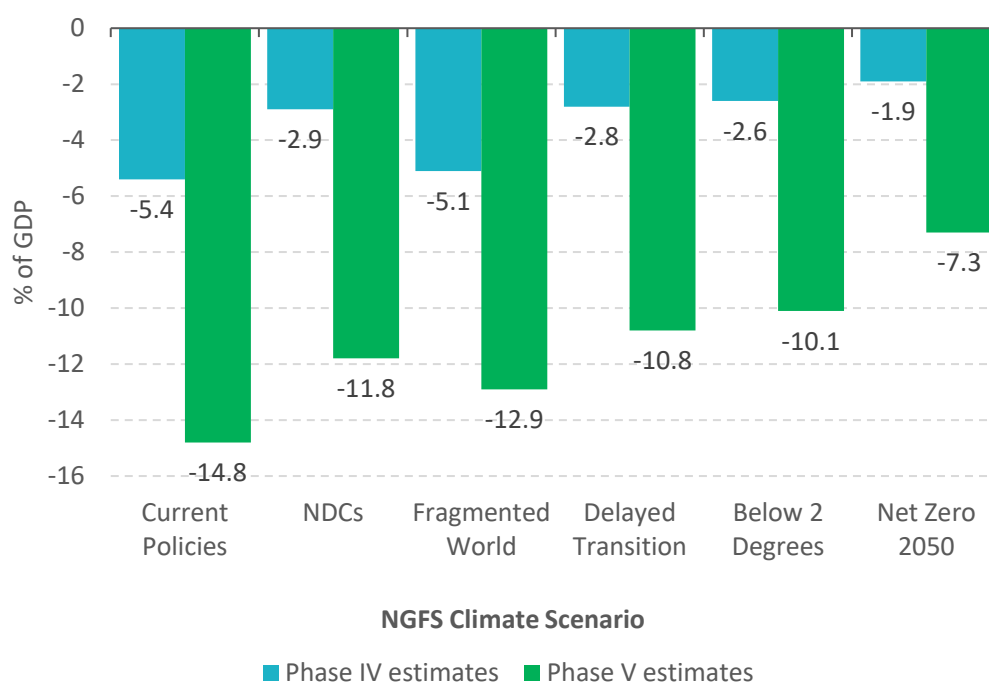
⁴⁴

2.2 Costs of inaction

A powerful approach to advocate for adaptation action is to estimate the economic losses associated with climate change under various scenarios. Demonstrating how effective adaptation measures can minimise or avoid these costs strengthens the case for urgent investment.

Recent advancements in estimating the economic impact of climate events have led to upward revisions in the projected costs of inaction, even when adaptation measures are considered. The NGFS released the fifth phase of its estimates in 2024 (Figure 6), showing significant downward revisions to global GDP compared to the previous 2022 assessment. Under a best-case scenario where net zero is achieved by 2050, global GDP is now projected to be 7.3% below baseline, a substantial increase from the 1.9% reduction estimated in earlier phases. These methodological improvements underscore the complexity and evolving nature of estimating climate change impacts.

Figure 6. (Chronic) Physical risk impact across scenarios by 2050 (Global);



Source: Network for Greening the Financial System. For full discussion on scenarios see <https://www.ngfs.net/ngfs-scenarios-portal/>.

Despite this uncertainty, efforts have been made to estimate the economic impact of implementing adaptation measures in Ireland. Research carried out under the Climate Change Advisory Council–Economic and Social Research Institute Research Fellowship considered five climate change impact areas.⁴⁵ The study found that gross damages exceeding 2.7% of GDP could be reduced to residual damage costing less than 1% of GDP. This could be achieved at a cost of 0.25% of GDP.

Sector specific estimates highlighted the significant costs of inaction under various climate scenarios:

- ➔ Coastal flooding (excluding erosion): Without adaptation measures, annual costs are projected to reach €2 billion by 2050 under the RCP 4.5 emissions scenario, increasing to €7 billion annually by 2100.⁴⁶ (Figure 7). Coastal has the largest modelled negative impacts on GDP.
- ➔ River flooding: Annual damages are estimated to be €60 million by 2050 under the same scenario.
- ➔ Heat stress: A 1°C increase in outdoor wet-bulb globe temperature⁴⁷ (a combined measure of heat and humidity) could lead to a 1.6% reduction in Irish labour productivity and a 12% increase in emergency hospital admissions.

These findings underscore the importance of implementing adaptation measures to mitigate the economic and societal impacts of climate change.

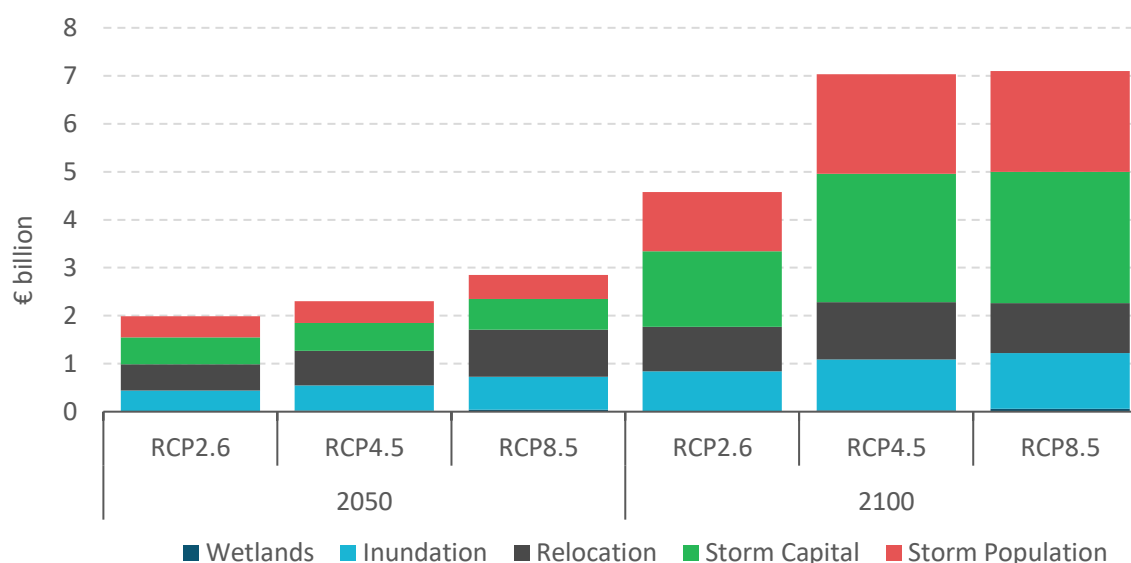
⁴⁵ [Policy Brief Economic Costs Climate Impacts and Adaptation in Ireland for web.pdf](#)

⁴⁶ There are four main scenarios for future climates based on different concentrations of greenhouse gas emissions. These scenarios are known as representative concentration pathways (RCPs), and they are RCP2.6, RCP4.5, RCP6, and RCP8.5. The RCP4.5 scenario has a medium level of greenhouse gas emissions. The two extreme scenarios are RCP2.6, in which greenhouse gas emissions are significantly mitigated, and RCP8.5, in which greenhouse gas emissions are not mitigated. The global average temperature in 2100 is projected to have increased by 1.6°C in RCP2.6 and by 4.3°C in RCP8.5

⁴⁷ The wet-bulb globe temperature is a measure of heat stress in direct sunlight that takes into account temperature, humidity, wind speed, sun angle, and cloud cover (solar radiation).



Figure 7. Estimated annual costs from coastal flooding by 2050 and 2100 under different climate scenarios



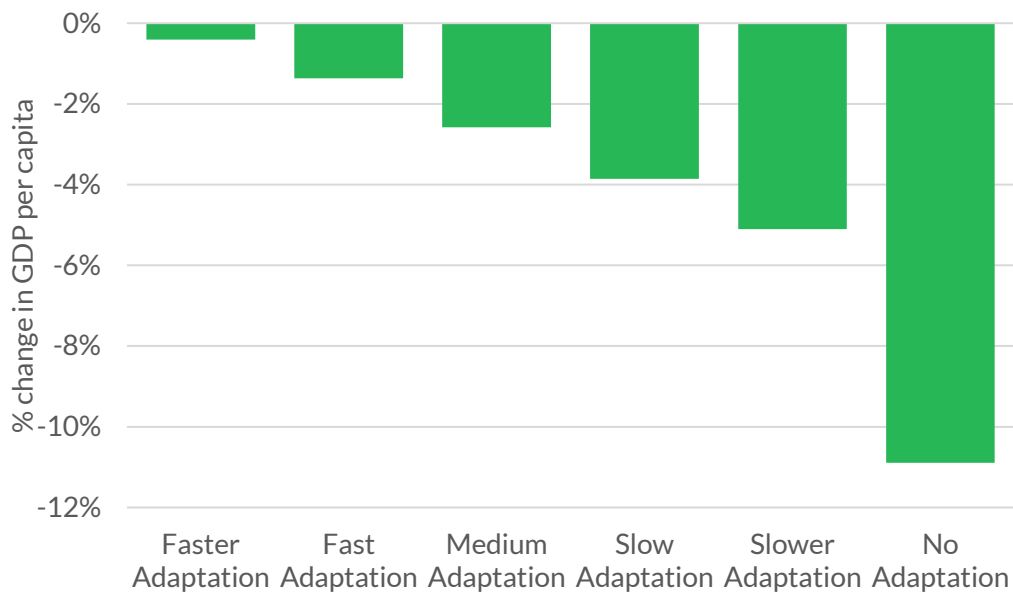
Source: Central Bank of Ireland after Economic and Social Research Institute Policy Brief Economic Costs Climate Impacts and Adaptation in Ireland⁴⁵

A cross-country study by University of Cambridge⁴⁸ quantifies country-specific per capita gross domestic product (GDP) losses from global warming, using the latest Intergovernmental Panel on Climate Change (IPCC) climate scenarios under varying mitigation, adaptation, and climate assumptions. The study estimates that without substantial mitigation and adaptation efforts, Irish GDP per capita could decline by up to 11.5% under high-emissions climate scenarios by 2100.

The research highlights the effectiveness of early action on adaptation for protecting GDP per capita over the long term (Figure 8). Faster implementation of adaptation measures could limit GDP per capita declines to less than 2% even under high emissions scenarios, demonstrating the critical importance of proactive climate action.

⁴⁸ Kahn, M. E., K. Mohaddes, R. N. Ng, M. H. Pesaran, M. Raissi, and J.-C. Yang (2021). Long-term Macroeconomic Effects of Climate Change: A Cross-country Analysis. *Energy Economics* 104, 105624; and Mohaddes, K. and M. Raissi (2024). Rising Temperatures, Melting Incomes: Country-Specific Macroeconomic Effects of Climate Scenarios, Cambridge Working Papers in Economics. <https://journals.plos.org/climate/article?id=10.1371/journal.pclm.0000621#sec004>

Figure 8: Irish GDP losses per capita can be reduced by fast implementation of adaptation measures



Notes: Estimates refer to Shared Socioeconomic Pathway (SSP) 3-7.0 (90th percentile of models); SSP3-7.0 is a medium to high reference scenario resulting from no additional climate policy under the SSP3 socioeconomic development narrative.



3. The Potential Barriers to Climate Adaptation Finance

As climate change impacts intensify, the need for widespread adaptation across the public sector, households, and businesses is increasingly clear. However, adaptation efforts in Ireland remain limited and fragmented, reflecting global trends.



This need-action gap^{49,50} is driven by informational, financial and structural barriers, as well as competing priorities, all of which hinder decision-making and investment.^{51,52}

3.1 Demand side barriers for adaptation action and finance

A key first step in addressing the barriers to scaling adaptation finance is to understand the demand-side challenges, including the obstacles to undertaking adaptation measures, which are prerequisites for a demand for finance to emerge.

- ➔ **Access to information:** The lack of clear, locally relevant information on current and future climate risks hinders adaptation. Adaptation measures are highly context-specific, and many stakeholders lack the expertise or reliable information needed to identify and prioritise effective interventions such as retrofitting buildings for flood resilience, upgrading cooling systems, changing supply chains, or relocating critical infrastructure. Low climate literacy, particularly among small businesses and lower-income households exacerbates this challenge.^{53,54,55} A 2025 Environmental Protection Agency (EPA) research study⁵⁶ revealed that while 82% of civil servants believe that climate action should be a high priority for Government, their perceived knowledge of climate change remains modest. Similarly, the 2023 'Climate Change in the Irish Mind' (Wave 2) study found that most Irish

⁴⁹ [Final Adaptation Scorecard Assessment Report 2024.pdf](#)

⁵⁰ [Scaling up finance and investment for climate change adaptation | OECD](#)

⁵¹ [Climate Adaptation Investment Framework | OECD](#)

⁵² [Beliefs and barriers: Climate change and Irish firms' access to finance](#)

⁵³ [Climate Conversations 2024 Report](#)

⁵⁴ [Two-thirds of SMEs fear they lack skills to tackle climate crisis](#)

⁵⁵ [Removing Barriers to SME Access to International Markets \(EN\)](#)

⁵⁶ [EPA-Climate-Attitudes-and-Literacy-in-the-Civil-Service-2025.pdf](#)



people believe climate action will improve economic growth and create jobs, yet barriers to action persist.⁵⁷

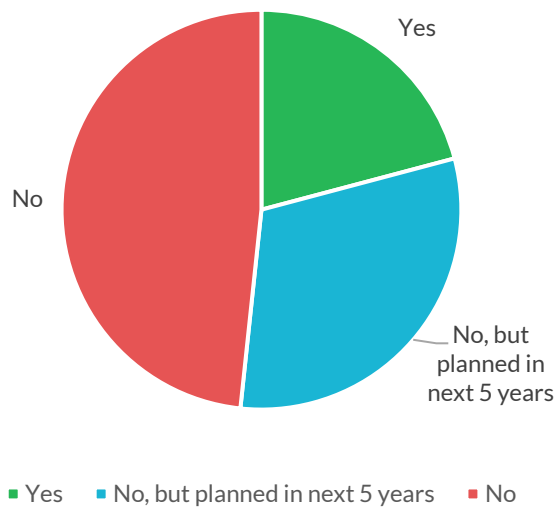
- **Treatment of uncertainty:** Uncertainty about future climate scenarios and their local impacts complicates decision making. There is uncertainty on which climate future we are adapting to and how these scenarios will impact stakeholders. There is uncertainty in the science around the climate parameters such as how much rainfall, local water runoff, and coastal erosion will occur. There is also uncertainty on the effectiveness of adaptation solutions. This uncertainty can lead to overly conservative planning which increases cost and risks projects being perceived as ‘gold plated’. Additionally, the risk of maladaptation, where measures fail to address the underlying issue or create new problems, further deters action.
- **High upfront costs and uncertain benefits:** Adaptation investments often require high upfront expense, with benefits that are long-term and uncertain. Without mechanisms to shift the risk-benefit profile, such as improved information, consistent incentives, insurance premium reductions, or property valuation enhancements, many firms and households prioritise immediate needs over adaptation. Economic uncertainty, driven by events like trade disruptions or inflation, further discourages investment in resilience to future risks.
- **Access to and attitudes towards finance:** Central Bank of Ireland analysis shows that Irish firms are concerned about climate risks but acknowledge that they have insufficiently invested in adaptation (Figure 9). Financial barriers include high search costs for funding due to fragmented or multiple grant schemes, administrative burdens and the overall cost of finance (Figure 10). Additionally, many Irish firms carry limited debt, preferring to rely on internal funding.⁵⁸ This reluctance to take on debt limits their ability to invest in growth, innovation, and climate resilience, potentially leading to underinvestment in critical areas. Policymakers may need to consider targeted incentives, such as grants, subsidies, or risk-sharing mechanisms, to encourage SMEs to overcome these barriers.

⁵⁷ [CCIM-Insight-Report-W2-No.2-Personal-Economy.pdf](#)

⁵⁸ [Beliefs and barriers: Climate change and Irish firms' access to finance](#)



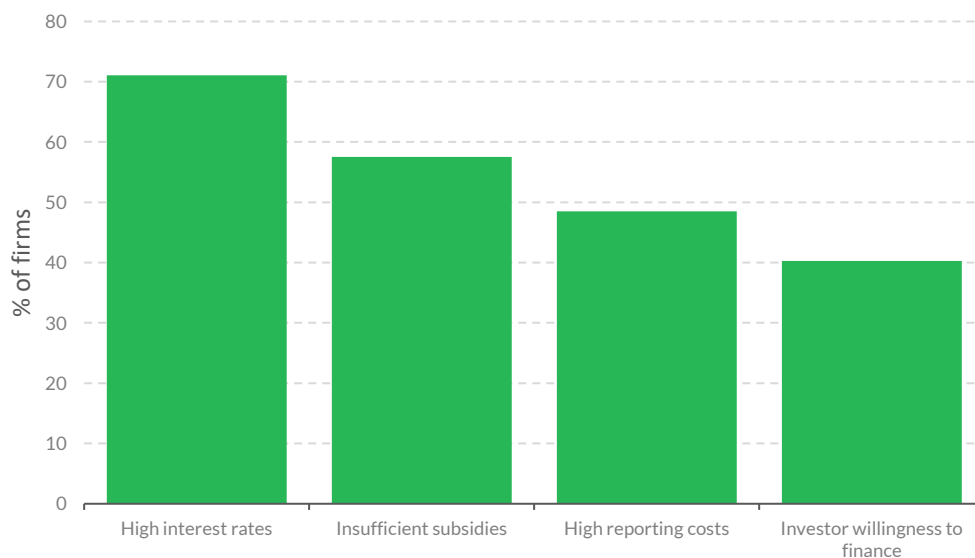
Figure 9. Many Irish firms do not yet believe they have sufficiently invested to mitigate natural hazards. Have you sufficiently invested to mitigate natural hazards risks?



Source: Central Bank of Ireland, "Beliefs and barriers: Climate change and Irish firms' access to finance"⁵⁶

Figure 10. Irish firms view finance costs and lack of subsidies among the biggest barriers to climate adaptation investment

(Chart shows % of respondents stating the factor was 'significant barrier' to climate adaptation investment)



Source: Central Bank of Ireland, "Beliefs and barriers: Climate change and Irish firms' access to finance"⁵⁶

3.2 Supply side barriers for adaptation finance

From the finance supply side, adaptation has historically been viewed by investors as the "poor cousin" to mitigation, receiving significantly less attention and funding. The slow pace of adaptation globally highlights the unique challenges of financing adaptation projects, which include:

- ➔ **Lack of Investable Projects:** Adaptation projects often fail to generate direct financial returns, making them less attractive to private investors who typically assess investments based on future cash flows. While some benefits, such as carbon credits, can attract corporate investment, these schemes remain small and underdeveloped. Unlike climate adaptation, other resilience investment, such as cybersecurity, often have more immediate repercussions that drive action. For example, cybersecurity investments are motivated by legal obligations, protecting data, and complying with regulations. The risks of not investing in cybersecurity such as financial losses, reputational damage, or regulatory penalties directly link to firm profitability. In contrast, benefits of climate adaptation are often long-term and may not generate immediate financial returns.
- ➔ **High-Risk Perception:** Adaptation projects are often perceived as high-risk due to uncertainty about their effectiveness and long-term viability. For example, if a system fails during an extreme event due to unforeseen factors, such as higher-than-expected flood levels or poor maintenance, the project could result in significant financial losses, reputational damage, and even legal liabilities for those involved. Financial benefits related to lower insurance premiums may not materialise if the underwriting risk appetite changes with certain adaptation solutions (e.g. those that might require manual interventions).
- ➔ **Small Scale and Local Knowledge Requirements:** Many adaptation projects are small-scale and localised, often requiring deep local knowledge to design effective solutions. This makes them less appealing to large funders or capital markets investors as frequently cited in international examples. In contrast, climate mitigation finance, such as for wind farms, offers more scalable and replicable investment opportunities generating cash flow and attracts large amounts of investor capital. Given the challenges of attracting large-scale capital market funding for small adaptation projects, there is a reliance on retail lenders to play an active role in financing these initiatives. However, this reliance can limit the availability of financing, as retail lenders may face challenges in



assessing risks⁵⁹ and returns or lack the capacity to fund projects at the necessary scale.

- ➔ **Challenges in Measuring Impact:** A key challenge in adaptation finance is the uncertainty surrounding whether investments will prove successful, as the effectiveness of many adaptation measures may only become evident over time and in response to specific climate events. For example, flood defences may not be tested for years, making it difficult to demonstrate their value in the short term. This uncertainty, combined with the absence of standardised metrics to evaluate success, complicates efforts to measure and compare the impact of adaptation projects. Developing frameworks (e.g. Dynamic Adaptive Pathway Planning) that account for long-term outcomes and provide interim indicators of success is essential to build investor confidence and encourage greater investment in adaptation, including via user pays funding structures, although such frameworks may only be suitable for large scale investments.
- ➔ **Fragmented Financing Mechanisms:** Investors are often discouraged by the fragmented nature of adaptation finance, where projects are geographically dispersed and lack coordination from both a logistical and relationship management perspective. This fragmentation makes it challenging to pool resources, streamline funding processes, and achieve economies of scale. As a result, adaptation projects often fail to attract the large-scale investment needed to address climate risks effectively, further widening the adaptation finance gap.

⁵⁹ <https://www.fca.org.uk/publication/corporate/from-risk-resilience-integrating-adaptation-finance.pdf>



4. Potential Solutions

There are four key areas to address in increasing adaptation finance:

- increasing demand for adaptation finance,
- scaling available finance,
- growing the attractiveness of private finance,
- improving access to finance.⁶⁰



4.1 Increasing demand for adaptation action and finance

Stimulating demand for climate adaptation requires strengthening mechanisms such as risk information tools, behavioural nudges, financial supports and development of transition, or resilience plans. Greater demand will deliver more projects earlier, expand the size of the market, and attract finance providers.

Risk information tools: These tools make climate risk information actionable for households, businesses, and local authorities. They raise awareness of specific climate risks that could impact them based on their geographical location or economic activity. This includes clear information on the climate scenarios that decision makers should plan for, as these are often unclear or uncertain. Additional support is often required to translate risk awareness into a prioritised list of solutions.

While developing a single tool to address the diverse range of risks may be challenging, publicly available digital solutions can stimulate action at scale by combining risk maps, checklists, and cost-benefit calculators in a manner accessible to the target audience. These tools can be further supplemented with targeted (public or private) advisory services to help households and businesses who will not have adaptation expertise assess their risk exposure and identify tailored, costed adaptation options. Examples of similar solutions which play part of the role include:

- ➔ **Ireland's Climate Ireland Data Explorer**⁶¹ including a Climate Change Projection Maps viewer with climate change projections provided by Met Éireann's TRANSLATE programme.⁶²

⁶⁰ Climate Adaptation Investment Framework | OECD

⁶¹ EPA Climate Ireland | Data Explorer

⁶² TRANSLATE - Met Éireann - The Irish Meteorological Service



- ➔ **Enterprise Ireland Climate Action Voucher** to financially support businesses develop a sustainability, circular economy or decarbonisation action plan.
- ➔ **Ireland's National Climate Change Risk Assessment** outlines key risks facing Ireland.
- ➔ **UK's Climate Risk Projections:** Open-access climate data for future weather scenarios to inform local businesses and households.⁶³
- ➔ **University of Melbourne** with funding from the National Environmental Science Program (NESP) produced an adaptation database for Australia. The database contains more than 700 initiatives.⁶⁴
- ➔ **UK Property Flood Resilience Pathfinder Projects** offers free of subsidised technical advice including financing options.
- ➔ **Canada's ClimateData.ca:** Translates technical climate projections into usable formats for infrastructure planning and local adaptation.⁶⁵
- ➔ **Australian Climate Service:** Provides climate risk data tailored to sectors like agriculture, health, and infrastructure.⁶⁶
- ➔ **Canada's "Climate Resilience Service for SMEs"** provides risk assessments and adaptation roadmaps.⁶⁷

Behavioural nudges: The UK Government's Behavioural Insights Team has shown that there is a strong link between perceived responsibility and feeling able to carry out the required actions to reduce flood damage.⁶⁸ However, households demonstrate a low awareness of risk, lack of awareness about the range of flood resilience measures available and lack of time or motivation to make a flood plan. The project team identified several recommendations including:

- ➔ Incorporate messages on planning for flooding into the official government website to improve accessibility and engagement. Communications should also provide clear explanations for suggested actions, making it easier for users to understand and act.

⁶³ UK Climate Projections (UKCP) - Met Office

⁶⁴ <https://australianadaptationdatabase.unimelb.edu.au/>

⁶⁵ Home — ClimateData.ca

⁶⁶ Australian Climate Service

⁶⁷ Climate Resilience for SMEs - Academy for Sustainable Innovation

⁶⁸ <https://www.bi.team/publications/applying-behavioural-insights-to-support-flood-resilience/>



- Apply reciprocity framing in communications where possible, highlighting the shared responsibility between government and homeowners in managing flood risks.
- Explore the use of a ‘future self’ exercise within the gov.uk ‘personal flood plan’ webpage. This could include prompts encouraging users to reflect on what it would be like to experience a flood, helping to make the risks more tangible and motivating action.
- Continue promoting flood plans to help homeowners and businesses prepare for flooding and complete flood plans as a key step in building resilience.

Financial supports: Reducing upfront costs lowers the barrier to entry and makes projects more viable. The mechanisms include subsidies, lower cost adaptation-linked loans and commitments on lower insurance premiums which can improve the business case and affordability of projects. Targeted financial supports from governments can steer capital towards areas most in need. There has already been a strong uptake of climate mitigation actions such as installation of solar panels and insulation. Given the success of these initiatives, there may be an opportunity to more closely link adaptation actions with successful programmes already underway for mitigation.

Some international examples include:

- Australia’s Household Resilience Program provides grants to help retrofit homes to withstand cyclones.⁶⁹
- France’s “MaPrimeRénov” scheme combines adaptation incentives with climate mitigation grants to households.⁷⁰ Their energy efficiency focus scheme (similar to schemes in Ireland) includes resilience upgrades against heatwaves.
- The United States Federal Emergency Management Agency’s Building Resilient Infrastructure and Communities (BRIC) funds adaptation initiatives including wildfire and flood-resilient housing.⁷¹

An important part of many household and business financial decision-making processes for adaptation is the continuation of affordable insurance coverage into the future. The steps required to improve this are included in the 2025 Action Plan for Insurance Reform and acknowledge

⁶⁹ [Household Resilience Program | NEMA](#)

⁷⁰ [Energy Transition -What are the conditions for benefiting from the MaPrimeRénov’ scheme in 2025? | Service-Public.fr](#)

⁷¹ [Building Resilient Infrastructure and Communities \(BRIC\) | US EPA](#)



that closing current and future climate protection gaps will require collaboration between the government, regulatory authorities, the insurance industry, and home and business owners.⁷²

Monetising nature-based solutions: Wetland restoration and reforestation can play an important role in climate adaptation by reducing flood risks, stabilising soils, and enhancing ecosystem resilience. However, monetising these benefits to attract private sector finance remains a challenge. The Irish nature finance market is in its infancy, but several schemes are developing solutions such as Peatlands Finance Ireland and ReFarm.⁷³ The European Commission's "Roadmap towards Nature Credits"⁷⁴ aims to create market-based mechanisms to reward nature-positive actions like ecosystem restoration and biodiversity enhancement. These credits align with EU standards, build investor confidence through certification, and leverage public-private collaboration to scale investments.

Transition plans: Transition plans provide a structured roadmap for organisations, governments, and financial institutions to align their activities with climate goals. They are critical for credibly managing the risks and opportunities associated with the transition to a low-carbon economy. To date, transition plans have focused heavily on climate mitigation, but there is a growing awareness of the need to also include adaptation planning.⁷⁵ In its publication 'Building trust in transition'⁷⁶ the EU platform on sustainable finance noted that consideration of climate adaptation as part of transition planning is essential to address potential physical climate risks and ensure a company's ability to operate sustainably in the near, medium, and long term.

The Central Bank of Ireland has outlined information for the financial sector on the approach to transition planning which includes accounting for adaptation.⁷⁷ The Bank emphasised the importance of credible

⁷²

https://assets.gov.ie/static/documents/20250801_Action_Plan_for_Insurance_Reform_WEB_-_BH_-_PDF_Version.pdf

⁷³ The Voluntary Nature Market in Ireland: State of Play, September 2025, https://www.tcd.ie/media/tcd/business/pdfs/research/The-Voluntary-Nature-Market-in-Ireland---State-of-Play_Sep-2025.pdf

⁷⁴ https://ec.europa.eu/commission/presscorner/detail/es/ip_25_1679

⁷⁵ NGFS Input paper on Integrating Adaptation and Resilience into Transition plans | Network for Greening the Financial System

⁷⁶ https://finance.ec.europa.eu/document/download/ec293327-af1d-432c-8523-cfe7eec8367e_en?filename=250123-building-trust-transition-report_en.pdf

⁷⁷ https://www.centralbank.ie/docs/default-source/financial-system/climate-hub/planning-for-transition-to-net-zero-our-perspective.pdf?sfvrsn=3b0e6b1a_11



transition plans as a means to build resilience in the financial sector as well as contribute towards a sustainable and resilient economy. The Bank has outlined principles for transition plans including strong leadership and resourcing; identifying viable actions; establishing clear targets and specific objectives; strong risk management; and ongoing monitoring and reviewing of progress against targets.

The adoption of transition plans is growing across the corporate sector, but regulatory changes are creating uncertainty for businesses. The proposed EU simplification agenda on the Corporate Sustainability Due Diligence Directive (CSDDD) proposes to reduce the scope of transition planning. This includes narrowing the scope of firms required to produce plans, reducing the ambition of plans and weakening requirements for implementation. Nonetheless, transition plans are important even without a regulatory obligation.

The demand side interventions above will increase the market for adaption finance, which will increase the scale of the market, strengthening the pipeline of projects requiring funding and therefore attract private sector investors. However, notwithstanding these demand side measures, changes are also required to ensure sufficient finance is available in the market.

4.2 Scaling finance for adaptation

A key barrier to private sector investment in climate adaptation is the perception that adaptation projects lack direct financial returns. Unlike mitigation projects, such as renewable energy installations that generate predictable revenue streams, adaptation projects are often seen as delivering social and environmental benefits that are considered public goods. These benefits, such as reduced flood risks, typically result in future cost avoidance from climate events rather than creating new cash flow.

However, many adaptation projects can generate cash flow through innovative financing models, such as user-pay systems. For example:

- ➔ **Resilience Infrastructure:** User fees or levies can be charged to property owners or businesses benefiting from access to climate-hardened infrastructure such as microgrids, irrigation systems or flood defences. This is more likely to be effective where those property owners or businesses at the same time would be benefiting from greater insurance access and/or lower insurance costs.
- ➔ **Climate-Resilient Agriculture:** Farmers adopting drought-resistant crops could pay for services or technologies through subscription models or volume pricing.



- **Eco-Tourism and Recreation:** Restored wetlands or forests can generate income through entry fees, guided tours, or recreational activities.

Despite these opportunities, even with a strong pipeline of projects, connecting small and diverse localised adaptation initiatives with institutional investors seeking to deploy large sums of capital remains a significant challenge. In Ireland, the relatively small scale of the economy presents additional challenges. Aggregating enough adaptation projects on a regular basis to meet the scale required for capital market instruments, such as bonds is difficult. Many adaptation projects are tailored to specific environmental contexts, making them difficult to scale. This limits their appeal to institutional investors who typically seek larger, diversified portfolios.

At the same time, distributing smaller-scale financial products directly to retail investors poses its own challenges. Retail investors may lack the expertise to assess the risks and returns of adaptation projects, the product may not be covered by normal retail investor protections and the administrative costs of managing smaller investments can be prohibitive.

This misalignment between the social or economic business case of adaptation projects and the commercial objectives of private investors creates a potential gap between projects in need of funding and the large, untapped pools of private capital.

To bridge the gap, several solutions can be implemented to attract private capital in addition to public finance:

- **Aggregation and blended finance:** creating financial vehicles that pool small adaptation projects into larger portfolios can help achieve the scale and diversification investors seek. When combined public sector incentives such as first loss or payment for adaptation services are provided, this can create conditions that enable private finance to be leveraged to a greater extent.
- **Guarantees concessional finance and risk mitigation:** providing guarantees, concessional finance or insurance instruments to encourage the private sector to develop user pay models of adaptation solutions. Such approaches help de-risk investments in regions or sectors that are otherwise unattractive as well as having potential to reduce fiscal pressure on the public sector in the future.
- **Standardisation and metrics:** developing standardised frameworks for measuring adaptation impact and financial performance can improve transparency and comparability across projects. This makes it easier for



investors to assess risk and return and integrate adaption into existing investment criteria.

- **Technical assistance and capacity building:** supporting project developers with technical assistance can improve project design, financial structures, and readiness for investment. This can increase the pipeline of investable projects.
- **Innovative financial models:** exploring mechanisms such as climate resilience bonds, pay-for-performance models, parametric insurance, or outcome-based financing can align financial returns with adaptation outcomes and create new pathways for investment.

Ireland has a number of these initiatives in place primarily focused on grant funding or technical assistance including the Climate Action Fund which offers grants for community adaptation to SMEs, local authorities, and NGOs under a blended finance model⁷⁸. Other local initiatives include:

- National Treasury Management Agency green bonds have raised ~€10 billion and include adaptation under their objectives.⁷⁹
- The Central Bank of Ireland Climate Risk and Sustainable Finance Forum⁸⁰ is building awareness and skills in climate risk tools and industry knowledge sharing mechanisms.
- Establishment of consistent guidelines and performance goals for adaptation projects in the National Adaptation Framework, Climate Change Sectoral Adaptation Plans and Local Authority Climate Action Plans.
- The Strategic Banking Corporation of Ireland's Growth and Sustainability Loan Scheme offers long-term, lower cost loans to SMEs investing in climate adaptation although take-up of this scheme has been low to date.

Engaging private sector finance is essential to reducing future pressures on public finances and ensuring sustainable funding for adaptation. While mechanisms such as blended finance, risk-sharing tools, and innovative financial models offer potential, detailed policy consideration is needed to identify solutions best suited to Ireland's unique conditions.

A national adaptation finance strategy could play a pivotal role by firstly providing much-needed estimates of long-term adaptation costs across all sectors and secondly outlining proposals to attract private finance. This could include exploring concessional finance, risk mitigation mechanisms, blended finance, and leveraging European funds. The timing is opportune,

⁷⁸ [Climate Action Fund](#)

⁷⁹ [Slide 1](#)

⁸⁰ [Climate Risk and Sustainable Finance Forum | Central Bank of Ireland](#)



with the forthcoming OECD country case study for Ireland applying their Climate Adaptation Investment Framework, which could help inform the strategy's development.

4.3 Insurance protection gaps

Insurance is a critical part of the adaptation finance landscape. A well-functioning climate risk insurance market provides society with the financial safety net for when climate events occur. However, protection gaps – where individuals, businesses, or communities lack adequate or affordable insurance – pose a significant barrier to resilience.

Insurance enhances financial resilience by enabling households and businesses to recover more quickly from climate events, reducing the risk of prolonged economic hardship. It also plays a vital role in asset protection, particularly in Ireland, where wealth is heavily concentrated in physical assets such as housing.⁸¹ The withdrawal of insurance coverage in high-risk areas can devalue properties and limit access to credit, create stranded assets further compounding financial challenges. Finally, insurance can act as a powerful tool to incentivise adaptation. Insurers can develop products that reward resilience measures, such as flood-proofing homes or installing storm-resistant infrastructure, thereby encouraging proactive adaptation and reducing risks for both insurers and policyholders.

Solely focusing on insurance coverage introduces the risk of moral hazard, where governments, individuals, businesses, or communities may rely excessively on insurance as a safety net without taking proactive steps to reduce their own exposure to climate risks. This can lead to underinvestment in adaptation measures, increasing overall vulnerability and long-term costs. It is therefore critical that work continues across all stakeholders to build adaptation and resilience in parallel with addressing insurance gaps. Strengthening resilience through proactive measures, such as flood defences and improved infrastructure, reduces the frequency and severity of climate-related losses, ultimately lowering the burden on insurers and ensuring more sustainable coverage options in the future.

Despite its importance, the insurance market faces several challenges in addressing climate risks. Affordability could become a major issue, as premiums for climate-related risks, such as flooding or windstorms, may become prohibitively expensive given the inherent risks. This is likely to impact on lower income households and SMEs most acutely. In some high-risk areas, availability becomes a concern, with insurers withdrawing coverage altogether due to high risk levels, leaving communities without

⁸¹ <https://www.centralbank.ie/statistics/data-and-analysis/household-wealth>



any financial safety net. Additionally, data gaps present a significant obstacle. Limited access to granular climate risk data makes it difficult for insurers to accurately price risks and design tailored products, further limiting the availability and affordability of coverage.

In October 2024, the Central Bank of Ireland published its Flood Protection Gap Report, which quantified the difference between the economic cost of flooding and the portion covered by insurance in Ireland. The granular analysis revealed that approximately 1 in 20 buildings face difficulty accessing flood insurance.⁸² Moreover, 89% of that cost relates to higher flood-risk buildings that have limited or no insurance access, and just five counties (Dublin, Cork, Kildare, Clare, and Louth) account for 54% of the protection gap. The report emphasises that climate change is expected to lead to increased rainfall and flood risk, widening the protection gap further.

The Government's Action Plan for Insurance Reform (2025–2029) includes "Climate Protection" as one of its six strategic themes.⁸³ Under this heading, the Plan calls for the insurance industry and other stakeholders to develop a strategic approach to supplying flood insurance, in collaboration with relevant stakeholders, to ensure long-term sustainability. It also supports enhanced Government investment in flood relief schemes, advocating stronger governance for maintaining such schemes, and promoting the development of innovative insurance products tailored to climate-vulnerable areas. The Plan further encourages industry cooperation on addressing the climate protection gap and engaging with EU-wide insurance initiatives to better manage natural catastrophe impacts.

4.4 Proposals for moving forward

There is no single solution to increasing and deploying adaptation finance in Ireland. A range of concrete actions, in addition to those initiatives outlined above, targeted at stimulating demand, creating the environment for scalable finance, and improving the access to finance channels will be required. Our priority recommendations are listed in Table 2 and set out the steps, actions, and a non-exhaustive list of lead stakeholders for delivery. This multi-faceted approach recognises the complexity of scaling adaptation finance in Ireland. By addressing demand, creating scalable

⁸² Central Bank of Ireland, "The Flood Protection Gap", https://www.centralbank.ie/docs/default-source/regulation/industry-market-sectors/insurance-reinsurance/flood-gap-report/flood-protection-gap-report.pdf?sfvrsn=3345671a_6

⁸³ Department of Finance, Action Plan for Insurance Reform: July 2025, <https://www.gov.ie/en/department-of-finance/publications/action-plan-for-insurance-reform-july-2025/>



financing mechanisms, and improving access to funding, these actions aim to build a more resilient economy and society in the face of climate change.

Table 2: Priority Recommendations

Steps	Concrete actions	Stakeholders
Risk Information Tools	1. Develop a register of successful adaptation projects and solutions including the finance models.	Department of Climate, Energy and the Environment, Climate Action Regional Offices
	2. Create a digital one-stop shop for accessible localised and sector specific risk information and data including incorporating solutions and decision-relevant supports for different risk types.	Climate Ireland, Met Eireann
	3. Examine options to provide or fund individual risk assessments and advice on exact adaptation requirements for business and households.	Department of Climate, Energy and the Environment
	4. Establish a National Climate Damage Register to monitor the financial and spatial impacts of extreme weather events.	CSO, Department of Climate, Energy and the Environment
Financial Supports	5. Seek ways to incorporate and promote adaptation actions into existing successful mitigation programmes such as SEAI energy upgrades, green mortgages, and SBCI Home Energy Upgrade Scheme.	Sustainable Energy Authority of Ireland, Strategic Banking Corporation of Ireland
Behavioural Nudges	6. Explore behavioural nudges to stimulate household and business to assess adaptation risks and act to mitigate these risks.	EPA Behavioural Insights Unit
Transition Plans	7. Encourage development of transition plans by SMEs, corporates and financial sector firms, to enhance the focus on adaptation alongside net zero targets. Financial firms transition plans should	Central Bank of Ireland, Dept of Enterprise, Tourism & Employment

	address how firms can support their customers climate transition and adaptation efforts, recognising the unique nature of adaptation investments.	
Climate Insurance Protection Gaps	8. Alongside accelerating climate adaptation investments, address insurance coverage gaps as outlined in the Insurance Action Plan. This includes examining public/private risk sharing mechanism, enhanced public/insurance sector data sharing and recognition of adaptation measures by insurers.	Department of Finance, Insurance Ireland, Central Bank of Ireland
Technical Assistance and Capacity Building	9. Incorporate adaptation financing into financial sector capability building initiatives including skills development and data gaps initiatives.	Central Bank of Ireland Climate Risk and Sustainable Finance Forum
National Adaptation Finance Strategy	10. Conduct a comprehensive national assessment of short- and long-term investment costs, clearly defining public and private sector funding roles. 11. Develop a national adaptation finance strategy designed to crowd in private and public funding to reduce long-term pressure on government finances.	Department of Finance
Streamline Funding Processes	12. Develop proposals to streamline funding processes for SMEs and local authorities for climate finance, including capacity support in the application process.	Climate Action Regional Offices



