epa Research

Report No. 515

# Climate Resilient Places

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## What did the research aim to address?

This project aimed to address a key knowledge gap in how climate change – particularly rising flood risk – will affect Irish communities at a highly local level. More frequent and severe floods threaten sustainable development, deepen inequalities and strain housing, infrastructure and local services. At the same time, choices about where and how Ireland grows economically and spatially shape future exposure to climate hazards.

The project set out to generate detailed local evidence on future flood hazards and their potential costs, how people perceive and value these risks, and how existing planning, housing, mitigation and adaptation policies interact with community-level vulnerabilities.

The core research combines state-of-the-art methods across disciplines, including numerical flood modelling, estimation of local flood damage costs under climate change, econometric analysis of how property prices reflect flood risk and plot-level analysis of the relationship between planning decisions and exposure. The analysis leverages innovative big data techniques, machine learning and geographical information system analysis to create novel datasets that offer new insight into local-scale risks and support more climate resilient decision-making.

## What did the research find?

The research reveals clear evidence that climate change is likely to intensify flood risks across Irish communities, including expanded floodplains and rising economic losses over time. New high-resolution modelling for Cork city illustrates the scale of possible future inundation under climate change, while estimates show that damage costs will escalate significantly without adaptation. Econometric analysis indicates that housing markets only partially reflect flood risk, suggesting that people and institutions may underestimate or undervalue future climate hazards. Analysis of planning decisions highlights similar gaps, with some development still occurring in areas likely to face increased exposure.

Stakeholder engagement – including interviews and surveys – revealed concern but varied perceptions of risk, reinforcing the need for clearer communication and support for local decision-making. The research advances the state of the art by integrating physical hazard modelling, economic analysis and social perspectives into a single evidence base. It also provides new datasets, methods and insights that can support national and local policy on adaptation, planning and community resilience.

## How can the research findings be used?

The findings provide evidence to help policymakers, planners, communities and developers make decisions today that reduce future climate risks. Local-scale flood projections can inform land use planning, infrastructure investment and the design of adaptation measures. Economic estimates of flood damage and insights into housing market behaviour can support policies that better reflect risk in the planning system, insurance markets and housing strategies. Stakeholder feedback highlights the importance of engaging communities in conversations about resilience, trade-offs and long-term place-making.

Creating climate resilient places will require local efforts and investments. However, effecting change requires bringing people on board, connecting the science with people's everyday lived experiences and starting conversations about the difficult choices and trade-offs that will be faced. The concept of resilience has the potential here to act as a rallying call – as a focal point for a more positive, optimistic conversation about building climate resilient places and communities. The Climate Resilient Places research project aims to take the first steps in developing the evidence base and starting the conversations that will underpin the creation of climate resilient places in Ireland.

Project code: 2021-CE-1058