



Climate Ireland Adaptation Network

Working Group 2 Report:
Just Resilience

Environmental Protection Agency

The EPA is responsible for protecting and improving the environment as a valuable asset for the people of Ireland. We are committed to protecting people and the environment from the harmful effects of radiation and pollution.

The work of the EPA can be divided into three main areas:

- **Regulation:** Implementing regulation and environmental compliance systems to deliver good environmental outcomes and target those who don't comply.
- **Knowledge:** Providing high-quality, targeted and timely environmental data, information and assessment to inform decision making.
- **Advocacy:** Working with others to advocate for a clean, productive and well-protected environment and for sustainable environmental practices.

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- Urban wastewater discharges;
- The contained use and controlled release of genetically modified organisms;
- Sources of ionising radiation;
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- Drive the implementation of best practice in regulated activities and facilities;
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- Monitor air quality and implement the EU Clean Air for Europe Directive, the Convention on Long Range Transboundary Air Pollution and the National Emissions Ceiling Directive;
- Oversee the implementation of the Environmental Noise Directive;
- Assess the impact of proposed plans and programmes on the Irish environment.

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- Assist in developing national plans for emergencies arising from nuclear accidents;
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- Provide independent evidence-based reporting, advice and guidance to government, industry and the public on environmental and radiological protection topics;
- Promote the link between health and wellbeing, the economy and a clean environment;
- Promote environmental awareness including supporting behaviours for resource efficiency and climate transition;
- Promote radon testing in homes and workplaces and encourage remediation where necessary.

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- Work with international and national agencies, regional and local authorities, non-governmental organisations, representative bodies and government departments to deliver environmental and radiological protection, research coordination and science-based decision making.

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- Office of Environmental Sustainability
- Office of Environmental Enforcement
- Office of Evidence and Assessment
- Office of Radiation Protection and Environmental Monitoring
- Office of Communications and Corporate Services

The EPA is assisted by advisory committees who meet regularly to discuss issues of concern and provide advice to the Board.



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Authors: Alan O'Connor, Ann Marie Crosse, Anna Davies, Anne-Marie Bell, Bronwyn Hall McLoughlin, Caitriona De Paor, Charlie Coakley, Christopher Phillips, Cian Gill, Cormac McKay, Darren Clarke, Eadaoin Healy, Gregory Murray, Helena Fitzgerald, Jodie Colgan, Johanna Varghese, John Enright, Jonathan Chambers, Jordan Delmar, Joseph McNamara, Kevin McCormick, Kritika Singhal, Laura Dixon, Liz Wakefield, Lorcan Connolly, Miguel Trejo Rangel, Naomi Blumlein, Paul McBride, Paula Lynch, Ronan Walsh, Suzanne Jackson, Tim Kavanagh, Tracey Skillington

ENVIRONMENTAL PROTECTION AGENCY
An Ghníomhaireacht um Chaomhnú Comhshaoil
PO Box 3000, Johnstown Castle,
Co. Wexford, Ireland

Telephone: +353 53 9160600 Fax: +353 53 9160699
Email: info@epa.ie Website: www.epa.ie
Lo Call 0818 33 55 99

Disclaimer

This Climate Ireland Adaptation Network (CIAN) working group report summarises discussions from working group meetings and written contributions from CIAN members. It is intended to reflect a range of perspectives shared from the group and should be treated as a working document and not interpreted as representing the official views or endorsement of individual contributors or the Environmental Protection Agency (EPA). The EPA, the CIAN working group members and the authors do not accept any responsibility whatsoever for loss or damage occasioned, or claimed to have been occasioned, in part or in full, as a consequence of any person acting, or refraining from acting, as a result of a matter contained in this publication. All or part of this publication may be reproduced without further permission, provided the source is acknowledged.

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Executive summary

The planet is warming, with Europe warming twice as fast as the global average and extreme weather events becoming more frequent and intense. In this context, there is a need to protect ecosystems, communities, and businesses from the impacts of climate change through adaptation and build resilience into the future. While adaptation refers to the actions taken to adjust to climate impacts, resilience describes the capacity of systems to withstand, absorb, recover, and learn from those impacts.

The role of the Climate Ireland Adaptation Network (CIAN), which was established by the Environmental Protection Agency (EPA) in 2023, is to provide a forum which encourages individuals and organisations to work together to deliver improvements in implementing adaptation measures. It also acts as a space where individuals share experiences, seek help from each other and learn from their peers. Following the CIAN seminar in October 2024, four working groups were convened to advance understanding of critical topics in climate adaptation and resilience: technical definitions of resilience, just resilience, resilient decision-making, and indicator development.

The working groups were designed as collaborative, co production spaces that enabled participants to openly share their views, practices, and perspectives. A core goal of the CIAN working groups was to enhance communication between stakeholders, build stronger links across Ireland's adaptation community, and provide a forum to discuss adaptation topics and identify practitioner needs and knowledge gaps. The meetings and workshops themselves were an important outcome, bringing people together, strengthening relationships, and advancing collective learning across the adaptation community.

This report summarises the output of Working Group 2, which focused on clarifying what “just resilience” means in the Irish context and how principles of fairness, participation, and access can be embedded in adaptation planning and decision-making. The report consolidates practitioner perspectives and challenges through a structured, consensus-driven process facilitated by the EPA, reflecting input from Government Departments, public agencies, semi-state bodies, private companies, academia, and civil society.

The group explored seven key areas:

1. Just resilience
2. Aspects of justice
3. Mapping vulnerability
4. Health and adaptation
5. Community resilience
6. Framing and storytelling
7. Implementation

A shared understanding of just resilience is essential to ensure adaptation efforts are equitable and inclusive, benefiting all sectors of society, particularly vulnerable and marginalised groups. Without this clarity, resilience strategies risk reinforcing existing inequalities or failing to address the needs of those most at risk. The Just Transition Commission recognise that while just transition efforts are largely focused on climate mitigation, this must be broadened to include climate resilience and adaptation with measures that are socially inclusive and equitable (Just Transition Commission, 2025).

The working group identified a number of cross-cutting issues, including the need for clear definitions and measurable objectives, particularly when operationalising just resilience for vulnerable groups. Justice was recognised as multidimensional, encompassing procedural, distributive, recognition, and restorative dimensions, and requires attention to historical injustices, intergenerational equity, and the inclusion of nature within resilience frameworks. Non-compensatory losses, such as the disappearance of culturally significant landscapes, introduce additional complexity to adaptation planning because they cannot be easily measured or replaced. At the same time, persistent data gaps and misalignments between technical assessments and community perspectives underscore the need for more robust data collection, improved transparency, and approaches that bridge scientific analysis with lived experience. Effective communication is critical for engaging diverse audiences, with strategies to make complex concepts relatable. Improving health and well-being, including mental health, were also highlighted as central to resilience, alongside the need for community-driven resources and inclusive engagement strategies that empower local actors and strengthen adaptive capacity.

The report of the working group concludes that Ireland's resilience strategy must embed justice and equity at every stage. Policy priorities include establishing national and local resilience objectives linked to vulnerability assessments; integrating equity into technical standards, funding criteria, and foresight tools; scaling health-oriented adaptation and equitable access to green spaces; building local capacity through long-term investment; and improving communication strategies. Scenario planning and risk registers should guide future-proof decisions, supported by reforms in insurance and risk-sharing to reduce financial barriers. Moving forward, Ireland must transition from ambition to action through coordinated governance, inclusive planning, and sustained investment so resilience becomes a lived reality for all communities.

1. Introduction

Purpose of the report

Following the CIAN seminar in October 2024, four Working Groups were convened to examine in more detail the following key adaptation and resilience topics:

- Working Group 1: Technical definitions of resilience
- Working Group 2: Just resilience
- Working Group 3: Resilient decision-making
- Working Group 4: Indicator development

The aims of the working groups were to:

1. Provide a forum to share, discuss, and summarise the current understanding and perspectives of sectors in relation to important climate resilience topics.
2. Identify practitioner (i.e. public agencies, semi-state bodies, private companies, academia, and civil society) needs and knowledge gaps.
3. Build stronger links between those involved in adaptation practices in Ireland.

Each working group was tasked with preparing a concise report summarising the work of the group.

Background on the CIAN Working Group 2

The purpose of this working group is to clarify what “just resilience” means in the Irish context, including how fairness, participation, and access are reflected in adaptation planning and decision-making. A shared understanding of just resilience is needed to ensure that adaptation efforts are fair, equitable and inclusive, benefiting all sectors of society, particularly vulnerable and marginalised groups. Without this clarity, there is a risk that resilience strategies could unintentionally reinforce or exacerbate existing inequalities and/or fail to address the needs of those most at risk.

This topic was selected because justice and equity are increasingly recognised as central to effective climate adaptation. Embedding these principles into resilience planning helps to ensure that decisions are fair, participatory, and responsive to diverse community needs. The approach taken by this group is informed by practitioner perspectives gathered through engagement, ensuring that the work reflects real-world challenges and priorities rather than abstract theory.

To achieve these aims, the group explored seven key areas:

1. Just resilience
2. Aspects of justice
3. Mapping vulnerability
4. Health and adaptation
5. Community resilience
6. Framing and storytelling
7. Implementation

Better understanding these elements will enable Ireland to move from ambition to implementation by delivering coordinated governance, inclusive engagement, and sustained investment. Establishing a shared understanding of just resilience will also support the integration of equity principles into national frameworks, sectoral plans, and local authority strategies, ensuring that adaptation measures are fair, actionable, and responsive to future climate risks.

Scope and intended use of the report

This summary report is designed to capture current perspectives, opinions, challenges, and opportunities related to the working group's topic. It serves as a shared reference point for stakeholders, supporting adaptation planning and practice by consolidating insights and framing key considerations for future action. By presenting practitioner-informed views, the report aims to strengthen a common understanding and encourage dialogue across sectors.

2. Methodology

The EPA facilitated the development of this report in partnership with members of the CIAN working group. This group consisted of representatives from diverse sectors and organisations, including Government Departments, public agencies, semi-state entities, private companies, academic institutions, and non-profit organisations.

The EPA organised three working group meetings in collaboration with working group members between April and October 2025 to assist in report drafting (see Figure 1 for the co-production process). An initial Table of Contents (ToC) was created through group discussions and was revised iteratively during the first two workshops based on participants’ written and verbal feedback. This feedback was compiled and shared for further refinement in later meetings, with consensus being sought in each session. Consensus was established through structured discussion of each section, iterative revisions based on collective feedback, and confirmation of agreement from all participants during meetings. Where differing views arose, these were documented and considered in subsequent drafts to ensure transparency.

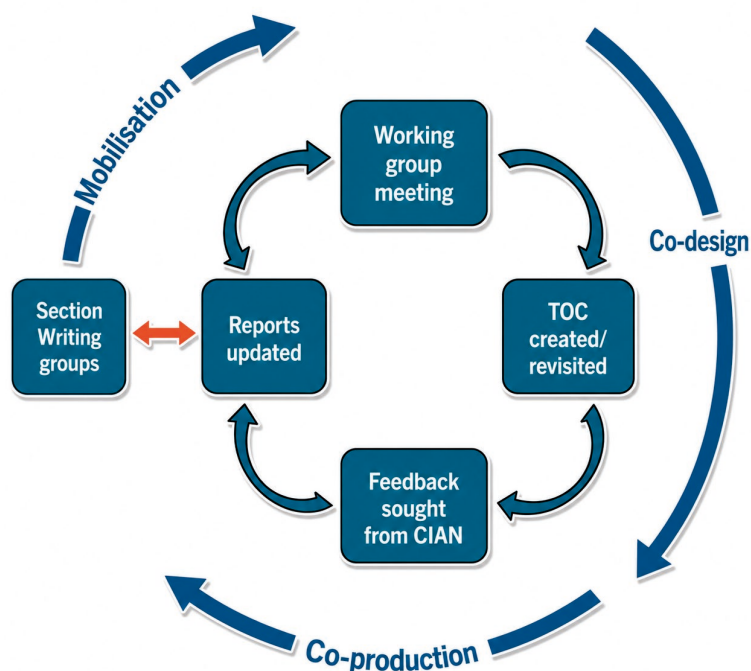


Figure 1: Co-production process with CIAN working group members. Starting with working group meetings there were three iterations of the cycle prior to the drafts being finalised.

Key themes that emerged from working group meetings were shared in the CIAN 2025 seminar, during which focused workshop sessions were organised to gather final input. This input was incorporated into the final report to ensure it represented the combined knowledge and viewpoints of practitioners within the climate adaptation community.

3. Just resilience

Expanding societal capacity to respond to unavoidable climate change underpins climate change adaptation planning. Central to this endeavour is understanding the extent to which systems can recover following a climate disturbance or absorb and diffuse climate shocks while maintaining function. This idea is often articulated as resilience and draws on a long history of research within ecological systems (Dakos and Kefi, 2022). While resilience has been applied to socio-ecological systems (Folke, 2006), concerns have been raised about the limited attention paid to unequal patterns of power and influence across society in its operationalisation (Hornborg, 2013; Miller et al., 2010).

In response, the term *just resilience* has emerged as a mechanism to connect justice issues with resilience analyses and adaptation planning (Miller, 2020). Just resilience has been presented as both a normative goal (something that should be done) and an analytical framework, through which opportunities and threats to both just and resilient outcomes can be identified and addressed. For example, Miller et al (2020) defines just resilience as *“the conditions that enable people to cope with, recover and restore their livelihoods in equitable, fair and inclusive ways following shocks and disturbances ... whilst also maintaining essential and valued connections to place, community and economy.”*

As an emergent term, there is no universally shared understanding of just resilience across stakeholders (Matin et al., 2018; Meerow and Newell, 2019). This can lead to different understandings of the term and different priorities for action between planners and communities. However, posing a set of key questions such as ‘resilience for whom?’, ‘what counts as just?’, and ‘how is success in terms of supporting just resilience to be measured?’ can clarify some of these differences.

While there are different understandings of just resilience in the context of climate adaptation, research has identified a core set of justice dimensions that ought to be considered when seeking to enact just resilience. These are commonly categorised into concern with creating equitable outcomes (distributive justice), opening up access to, and influence within, decision making (procedural justice), as well as ensuring past inequities and citizens’ values, especially those who have been marginalised, are acknowledged and addressed (recognition justice) and reparative action undertaken (restorative justice).

What is the definition of just resilience in Ireland?

The National Adaptation Framework (2024) (NAF) of Ireland employs the just resilience definition outlined by the European Environment Agency (2023):

“How different groups of society are affected by climate change impacts and how benefits and burdens of adaptation responses are distributed across different groups and how different groups experience fair and transparent processes with a fair distribution of political power and participation in policymaking.”

Based on the above, just resilience can be defined as: ensuring that all groups in society, particularly those who are marginalised, vulnerable, or disadvantaged, are adequately prepared for and adapted to climate impacts, while adopting a transformative approach that not only enhances adaptation but also fosters the transition toward a more sustainable and just system.

It is crucial to identify who vulnerable groups are, as well as the degree of marginalisation, vulnerability, and disadvantage they face. Once identified, measures should ensure that these groups are equally prepared and adapted to climate impacts, taking their specific circumstances into account. Just resilience also involves ensuring the inclusivity of all groups potentially exposed to climate impacts, while simultaneously promoting a transformation toward more sustainable systems in an equitable and just manner, thereby strengthening overall resilience.

‘Vulnerability’ is used as a practical umbrella term within policy and risk assessment. However, vulnerability is not inherent to individuals or communities; it arises from social, economic, political and environmental conditions that shape exposure, sensitivity, and capacity to respond. These conditions may be rooted in structural inequalities and historical processes, including legacies of exclusion, discrimination, and dispossession. ‘Marginalised’ refers to groups whose voices, knowledge, or rights are systematically excluded or undervalued in decision-making. ‘Disadvantaged’ highlights material or structural inequalities, such as income, housing, or service access, that constrain adaptive capacity.

4. Aspects of justice

While resilience and just resilience are rooted in principles of equity and transformation, operationalising these concepts in Ireland requires clear governance pathways, co-design with affected communities, transparent decision rules, resourcing commitments, and monitoring and evaluation, so that values are translated into actions across programmes and projects. Just resilience in the context of climate change adaptation requires a reimagining of adaptation through the lens of justice. It is a multidimensional concept, with the central aim of enhancing the capacity of society, and the natural systems on which we rely, to flourish, while anticipating inevitable disruptions and crises (Lager et al., 2023).

While there are many and diverse understandings of justice (Sandel, 2009; Skillington, 2023), a clear case has been made to create an understanding of adaptation justice which covers multiple dimensions. Studies such as Gruby et al. (2021) highlight three commonly cited types of environmental justice: procedural, distributive and recognitional justice. While some scholars also describe the need for restorative justice (Juhola et al., 2022). These dimensions are all crucial for creating conditions for just resilience in Ireland and should guide day-to-day decisions, budgeting, programme design, and delivery.

Procedural justice

Procedural justice focuses on who participates in decision-making and how those decision-making processes are structured (Holland, 2017). In climate adaptation programmes, affected communities may be invited to engage in consultations about future developments. However, it is not always clear how such engagement impacts decision making. Meaningful procedural justice centres the knowledge and agency of communities in shaping adaptation pathways by ensuring accessible, transparent, and accountable governance structures where marginalised actors have real influence over outcomes (Hügel and Davies, 2020). However, establishing just resilience will need to move beyond fair processes to include attention to outcomes (Muller, 2001). In practice, this means publishing plain-language participation plans, resourcing engagement (e.g., travel and childcare supports), and giving communities formal roles in option appraisal, priority setting, and final decisions.

Distributive justice

Distributive justice considers how the costs and benefits of adaptation are allocated across space and time. A just approach to resilience needs to consider how to prioritise the redistribution of resources, recognising that there are variable capacities to adapt and variations in who will bear the greatest risks, often due to historic and structural inequalities (Adger et al., 2006). Too often, resilience investments have been found to flow towards areas of economic importance, while vulnerable populations face displacement, loss of livelihoods, or deepening precarity (Chu et al., 2025), creating varied and multilayered climate riskscapes (Davies et al., 2020). Operationally, distributive justice can be embedded through equity weighted investment criteria, social safeguards that prevent displacement, and baseline access measures (e.g., flood protection, cooling, health services) for vulnerable groups.

Restorative justice

Restorative justice also brings a critical temporal dimension to understanding just resilience and widens the scope of those considered to include non-human species, habitats, and ecosystems. Restorative justice may involve land restitution, compensation, or long-term investment in community-led recovery and regeneration. Consideration of restorative justice in climate adaptation literature is still rare, with more attention to loss and damage, environmental harm, or broader climate justice, than about concrete adaptation planning with restorative justice as a core goal. Programme level approaches can include long-term funds for community-led regeneration and heritage protection, nature repair initiatives, and explicit accountability mechanisms that acknowledge past harms.

Recognitional justice

It is essential that the positions and perspectives of those who are most vulnerable and marginalised in society are considered when adapting to a climate changed future. This concern is commonly articulated as recognitional justice. This refers to an acknowledgement of, and respect for, diverse identities, values, worldviews and lived experiences of diverse social groups in the planning and implementation of adaptation policies and actions (Funfgeld and Schmid, 2020). It contrasts with a focus on who gets what (distributive justice) and how decisions are made (procedural justice) and elevates attention to whose voices and values gain legitimacy in adaptation processes to counter present and historic marginalisation (Sultana, 2022). Moreover, recognitional justice can be seen as an enabler of procedural and distributive justice. Practically, recognition justice requires mapping who is at risk (e.g., vulnerability assessments coproduced with communities), tailoring actions to cultural and local knowledge, and using inclusive communication that reflects diverse languages and norms.

Emerging approaches

There are emerging efforts to enact just resilience both in Ireland and further afield, such as encouraging decision-makers to work within the framework of planetary boundaries or through Doughnut Economics (Raworth, 2018). Both approaches seek to identify a safe and just space for future development, meeting human needs (social foundation) while not exceeding the ecological ceiling created by our planet's finite resources. Such approaches alongside vulnerability mapping and stakeholder engagement activities can help to ground abstract concepts of justice in real-world adaptation planning. Taken together, these practices provide an operational bridge between Ireland's definition of just resilience and the practical work of planning, budgeting, and delivery. Ultimately, just resilience is not merely about surviving a climate-changed world but about reshaping it in ways that are more equitable, inclusive, and accountable to those who have long borne the burdens of both climate change and systemic injustice.

5. Mapping vulnerability

Social processes and power relations shape unequal exposure to climate-related hazards, making some people more prone to disaster than others (Bankoff, 2004). In Europe, the most salient health risks include heat impacts (including effects on nutritional quality), flooding, and water shortages. Flooding poses acute risks to life and is strongly associated with adverse mental health and wellbeing outcomes. Vulnerable groups may include women, older adults, people experiencing homelessness, ethnic minority groups such as the traveller community, people with disabilities, and younger people.

An intersectional perspective is essential to just resilience. People's experiences of climate risk and adaptive capacity are shaped by the interaction of multiple factors, such as income, age, gender, disability, ethnicity, housing status, and geographic location. These factors do not operate in isolation; they intersect to produce compounded forms of disadvantage or exclusion. Incorporating intersectionality into vulnerability mapping and engagement processes helps avoid one-size-fits-all approaches and ensures adaptation measures reflect lived realities. Risk is further influenced by factors such as elevated heat-related mortality, population density, economic inequality, and limited access to green space. Delivering effective adaptation remains challenging due to long intervention time horizons, budget pressures, and inadequate data, issues that constrain prioritisation and the targeting of actions.

Concerns around data availability, what is included, where gaps exist, and how uncertainty is handled, are central to robust vulnerability mapping. Large-scale mapping must align with community perceptions of vulnerability to avoid misrepresentation and mistrust. Data gaps should be explicitly acknowledged, as they inevitably shape policy decisions; recommendations to improve data collection should be embedded within the report. Public Health Intelligence (PHI) is vital to create an enabling environment for resilience-building, combining early detection, verification, risk assessment, and transparent reporting/dissemination to support rapid response and decision-making. In the Irish context, integrating social and economic datasets (e.g., CSO and Pobal) can quantify disparities and improve the fidelity of vulnerability analyses and mapping.

A systemic, co-developed approach is most effective. Evidence from Howkins et al. (2024) indicates that cross-collaboration among at risk communities, local authorities, and higher-level decision-makers, supported by live mapping tools, can reveal intersections of vulnerability and hazard and predict exposure at area and community scales. Stakeholders frequently report siloed efforts; shared platforms and tools help build adaptive capacity, inform resource allocation, reduce inequalities, and target interventions where future need is likely to be greatest. Local authorities play a crucial role in building resilience and mitigating health effects, particularly when adaptation is dovetailed with local priorities in a multifunctional way and framed through a just transition to avoid unintended harms to vulnerable groups.

The JustAdapt project in Ireland demonstrates how spatial microsimulation and climate data can together reveal vulnerability hotspots and the local economic implications of climate policy (Ceolotto et al., 2025). The CDC/ATSDR Social Vulnerability Index (SVI) ranks communities using census-derived indicators to inform preparedness and response (Agency for Toxic Substances and Disease Registry, 2024). A Balanced Scorecard adapted for environmental justice can fill gaps by embedding vulnerability and climate impacts into routine decision frameworks. The primary aim of vulnerability mapping is to inform timely, equitable decisions. PHI offers a practical governance scaffold: detection, verification, risk assessment, and reporting/dissemination, supported by alert channels and coordination systems for early warning of emerging threats. High-quality vulnerability maps support equitable policy design by identifying the needs of the most vulnerable so that adaptation does not exacerbate inequalities. They enable targeted resource deployment, prioritising areas with the greatest combined hazard and social disadvantage, and enhanced decision-making, turning complex data into clear, engaging visuals for policymakers and the public. Community resources such as film screenings (e.g., *Safe Landing – Guilt Trip*) can complement technical tools by fostering public dialogue and shared understanding.

Measurement is constrained by available data, with notable gaps for inclusion health groups. Quantitative indices may overlook ethnographic dimensions resilience, social capital, behavioural norms that meaningfully shape adaptive capacity. Awareness alone does not guarantee impact; mapping must be tied to governance, funding, and delivery mechanisms. To mitigate, document assumptions and uncertainties, include qualitative insights, set out a data-improvement plan, and track outcomes through learning cycles.

6. Health and adaptation

When adaptation is understood as a set of activities and mental processes that occur at different levels of exchange with our environment, a proactive approach to climate change adaptation can help to significantly reduce its impact on health and wellbeing. It is a well-known fact that regular immersion in green and blue environmental spaces promotes a broad range of positive health impacts, enhancing physical health, as well as mood (relief from experiences of depression, loneliness, anxiety), emotional stability (an increase in feelings of happiness, playfulness, contentment with life), curiosity and sentiments of belonging to a meaningful world (WHO, 2021; Hartig et al., 2014). In addition to these psychological and social dimensions, poor air quality remains a major physical health risk in Ireland, driven primarily by solid fuel burning and traffic emissions. It is estimated that over 1,700 premature deaths each year are linked to air pollution, with documented associations to cardiovascular and respiratory diseases, dementia, type 2 diabetes, and neonatal mortality, placing children and older adults at particularly high risk (European Environment Agency, 2025). Strengthening adaptation strategies therefore also improve air quality through increased access to active travel, expanded green and blue spaces, and urban tree-planting, which deliver both health co-benefits and resilience gains. Effective adaptation to climate change, however, requires not only behavioural change, but a conscious effort to cognitively and psychologically adapt to climate changing conditions as well, both at the individual and collective social level.

To develop effective adaptation strategies, it is essential that communities work collaboratively on a multi-level climate equity plan for their region, one that ensures all cohorts within each neighbourhood can adapt safely to warmer temperatures, higher humidity and a greater risk of flooding or storm damage in the years ahead. Equity plans help communities and planners to identify areas and populations who are particularly vulnerable and introduce pre-emptive measures to reduce the likelihood of adverse impacts, including infrastructural redesigns, heat-health awareness campaigns, preparedness toolkits, citizen science initiatives, community watch and alert systems, support groups, etc. These can help to alleviate anxiety about future disaster events and identify specific areas in need of address. Other important supportive initiatives might include community centered 'good grief' networks where climate-related anxieties and concerns about the future can be explored in group settings with trained therapists, helping communities to work through the mental health impacts of climate change and move towards developing a more proactive adaptation strategy.

According to the estimates of the UN Department of Economic and Social Affairs (2018), 68% of the world's population will live in cities by 2050. Here in Ireland, 65% of the population already lives in urban settings (United Nations, Department of Economic and Social Affairs, 2018). Given this concentration of population in urban areas, there is a need to pay close attention to the challenges encountered by several cohorts, including older residents, those with a disability and members of vulnerable or low-income socio-economic cohorts. For example, city dwellers are more exposed to higher heat stress and are at greater risk of ill health due to extreme heat events because of urban heat islands and other effects (Uejio et al, 2010). For members of these population groups, experiences of marginalisation are reinforced by poor access to green and blue spaces in our cities and a lack of support services to enable their participation in new sustainable development initiatives (European Environment Agency, 2022). Limitations on opportunities to enjoy nature's restorative benefits and community support services have not featured sufficiently in recent accounts of the 'climate smart

city’ (see European Commission, 2023) or the ‘15-minute city’ (Moreno et al., 2021), both of which implicitly assume equal opportunity in terms of access to eco-services across all cohorts. A more contextually grounded or ‘immersive’ approach to sustainable planning is needed to address current barriers, one that documents the experiences of various users and incorporates their perspective into the design of new adaptation measures moving forward (Skillington & Kirsch, 2024).

7. Community resilience

Community resilience, in terms of weather and climate, can be understood as the collective capacity of people who share similar sociocultural characteristics within a physical space to cope with and learn from a crisis. Community resilience emerges from the strengths or characteristics that allow building resilience through agency and self-organisation, with attention to people–place connections, values and beliefs, knowledge and learning, social networks, collaborative governance, economic diversification, infrastructure, leadership, and outlook (Berkes & Ross, 2013).

Those conditions enable a community to prevent, respond to, and recover from adverse weather- and climate-related impacts by adapting and preparing to become more resilient. Community resilience requires organisation, inclusivity, citizen engagement, and dialogue to ensure that everyone is heard and represented. It is a continuous journey of transformation, preparing communities for future weather- and climate-related impacts that are becoming more frequent and intense.

Community resilience arises from within the community and with its members. However, it should not be seen as an isolated system unaffected by external factors. For example, communities can be exposed to climate-related impacts not directly caused by them. Moreover, resilience at the community level does not depend solely on the community itself; external actors can also contribute to building resilience. These actors may include regional and national authorities, academics, and the private sector.

The NAF emphasises the need for a *‘whole of government and society approach’*, to adaptation planning and decision making, emphasising the interdependencies between sectors. The National Dialogue on Climate Action (NDCA), has also recognised the key role which a whole of society approach must play (Department of Climate, Energy and the Environment, 2021). Ongoing engagement between civil society, government, the private sector, and the research community is crucial to build awareness, acceptance, and the ability to adapt to the climate crisis.

Local knowledge, skills, and community training are also critical to ensure communities have the capabilities to prevent, manage, and respond to the risks and environmental difficulties faced in their local area. Opportunities for communities to build their capabilities and create networks to share their knowledge enhances their role as change agents within their local area. In 2023, the Department of Rural and Community Development and the Gaeltacht launched *‘A Guide for Inclusive Community Engagement in Local Planning and Decision Making’*. This resource guide was developed with the aim of ensuring that marginalised and disadvantaged communities have opportunities to engage and participate in local planning and decision-making, and to ensure that their views are reflected in local decision-making. The guide also aims to enable more sustainable development at a local level. Since publication, the Guide has been referenced as a resource in the development of local planning and decision-making Local Economic and Community Plans (LECP) and the Community Climate Action Programme (CCAP).

Preparing to prevent and lessen the impact of extreme events will require long-term investment from both regional and national authorities, academics, and the private sector. However, there is a growing desire for meaningful citizen engagement. This will bring in a wider range of voices, especially from local communities to support national infrastructure development. Research between the MaREI Centre at UCC and EirGrid (Ireland's electricity transmission system operator) has investigated how public engagement processes can enable positive outcomes throughout the process of infrastructure delivery. The results of this research indicate that early engagement with citizens and communities is feasible and effective in delivering timely infrastructure projects related to grid development.

Community cohesion and good community relations are key components of adaptive capacity and resilience. Encouraging communities to connect, to check in on vulnerable people, to support community groups and to share information and resources, fosters trust and mutual support. These are the foundations of social cohesion which is crucial to build community resilience. Structures such as Climate Action Regional Offices (CARO), work within local authorities to coordinate community-led initiatives, networks and forums that strengthen climate resilience across regions. Ultimately, community resilience is measured by the communities' ability to manage crucial resources, even if there is a loss of access to external resources and to work together to sustain critical systems, even during times of crisis.

8. Framing and storytelling

Communicating the importance of climate resilience to diverse audiences is essential for raising awareness and motivating people to contribute to strengthening it. Although everyone is affected by climate change, its impacts are unevenly distributed, and people differ in how they perceive the issue and in their views on appropriate responses. Concern about climate change is not uniform across populations. For instance, in Ireland, the EPA's Climate Change in the Irish Mind study reported that a segment of the population remains *Doubtful* (4%) or *Cautious* (14%) about climate change, while others are *Concerned* (48%) and *Alarmed* (34%) (Environmental Protection Agency, 2024). However, being concerned does not necessarily translate into active engagement in mitigation or adaptation efforts (Environmental Protection Agency, 2024). Therefore, it is crucial to communicate climate-related issues and possible solutions effectively, encouraging people to actively participate in building greater climate resilience.

The question then arises: how can communication be delivered effectively in ways that both raise awareness and engage people to become part of the solution? There is no simple or single answer, but there are several key elements that can be considered to make that happen. For example, the framing of climate resilience messages plays a significant role in shaping understanding and capturing attention. To make such messages more engaging, it is important to tell stories and use language, imagery, values, worldviews, and contexts that resonate with the intended audience. Trusted communicators such as community leaders, educators, local organizations, or respected public figures are vital in this process, as people are more likely to engage with messages delivered by those they know, respect, or identify with. Otherwise, the message may appear distant or beyond their capacity to influence, which can discourage rather than motivate action.

Multiple channels can be used to deliver these messages, such as written materials, videos, art exhibitions, documentaries, and more and each should be explored to determine which is the most effective for a given audience. Trusted communicators can also help tailor these formats, ensuring that both the content and delivery method are credible and relevant. Ultimately, climate communication should inspire individuals and communities to take agency and become part of the solution. While individual actions may seem small or limited in scope, when combined with the efforts of others, they can make a significant contribution to strengthening climate resilience.

There are practical tools that are available to design and frame climate story telling. For instance, REACHOUT (2024) elaborated the guide “How to build a climate story”, where is recommended to consider three cycles as follows:

“Cycle 1 – Plan: Set the goal of the story, decide on the main message, identify the audience, and find the best way to connect with them and the stakeholders.

Cycle 2 – Design: Make a storyboard that includes the storyline, visual style, characters, and mood of the story.

Cycle 3 – Create: Produce the content (media, graphics, data) and turn the story into a product.”

Sippel et al. (2022) suggested ten principles for effective climate communications which are organised into three phases.

1. *“How to open the door”* that is based on framing stories and messages connected with a) people’s values though b) trusted messengers which effectiveness are c) tested and research.
2. *“How to reach minds and hearts”* by a) bringing climate issues that are relevant for a familiar context, and b) using frames consciously that resonate with the target group. The c) use of imagery tell powerful stories is key to allow people visualise themselves as well as d) providing accurate information.
3. *“How to turn concern into action”* can be facilitated by a) provide spaces for interaction, b) making climate action the ‘new normal’, and c) offer practical possibilities for personal action.

Planet Media (2024) also developed *“A toolkit for climate storytelling”* where the four key principles principle below were considered:

- a) Earth is our home
- b) Earth is getting hotter because of us
- c) Our climate is changing now, and that harms us, and
- d) Together we can build a brighter future.

These principles emphasise the relevance of communicating how connected people are with the environment and how people are also part of it. They also centre on the fact that climate change directly affects people but also empowers people to act.

The toolkit for climate storytelling also stresses different strategies such as the importance of *“connecting the dots”* for linking problems with solutions, highlighting problem-solving efforts rather than focusing solely on the issues. *“Your actions matter, and working together matters even more”*, that encourages community collaboration and collective action. *“We are part of nature, not separate from it”* that focuses on coexistence rather than control. Lastly, *“localise”* that emphasises showing climate impacts in a local context that audiences can easily understand.

Localising climate communication can also be supported through existing community structures, such as Public Participation Networks, Tidy Towns groups, Town Teams, and other local forums. These groups can help identify on-the-ground assets, local vulnerabilities, and practical solutions, making climate resilience feel relevant and actionable. They can also act as trusted local champions, supporting community-led implementation of approaches like Mutual Aid and neighbourhood-level preparedness.

Creating accessible written pieces that inspire storylines are crucial for highlighting tangible. Sharing these stories helps spread knowledge, promote collaboration, and encourage the adoption of good practices. Through written materials, storytellers can communicate information about climate impacts, adaptation and mitigation solutions, and the causes of climate-related issues.

In addition to message framing and storytelling, just resilience requires attention to communication channels and access. Digital tools, social media, and messaging platforms play a growing role in engagement and emergency communication. However, digital exclusion, including limited digital literacy, affordability barriers, language, disability, or lack of connectivity, can prevent some groups from receiving critical information or participating in engagement processes. A just approach to resilience communication therefore requires a mix of digital and non-digital channels, such as community radio, printed materials, local networks, and in-person outreach, to avoid reinforcing inequalities.

9. Implementation

Supporting community-based organisations is essential while reducing the overwhelming responsibility placed on individuals and grassroots networks to manage disasters and unpreparedness. This involves identifying organisations already providing rapid support to households and communities during emergencies and determining what resources the State must offer to strengthen their efforts. Investment and funding should enable these groups to continue their vital work, reflecting Collier and Lakoff's (2008) concept of "distributed preparedness," which emphasises community autonomy alongside connections to formal networks such as State or philanthropic systems. Interventions should also aim to collectivise and de-commodify risk, for example, through infrastructure investments that provide security as a public good or by reducing insurance costs for low-income residents. Scenario planning is critical: communities should map resource gaps under different scenarios and develop action plans through facilitated workshops, addressing issues like home damage, evacuation, and road closures. Government authorities must have ready-to-go response plans that integrate with community networks, including practice demonstrations to clarify roles, shelter arrangements, food and water supply, and communication strategies, while mapping agencies best suited for engagement across government, philanthropy, and the private sector.

Building resilience also requires identifying local strengths such as road clearing, home repairs, and food production, and funding entrepreneurship, education, and training to establish microbusinesses that provide transferable skills for preparedness and disaster management. Plans should consider cultural awareness and support for vulnerable groups, ensuring alignment between what communities' experience as emergencies and official definitions, as seen during Hurricane Sandy. Strong connections and collaboration with State disaster programmes, humanitarian agencies, and initiatives promoting sustainable agriculture and renewable energy are vital, alongside funding recovery projects that deliver long-term equity and resilience. Supporting local initiatives like small-scale, place-based projects that enhance community economies, such as local food production, wellbeing services, and diverse sports clubs, can further strengthen resilience. Finally, establishing a Centre for Community Sustainability would provide a hub for channelling aid, education, training, and resources, while creating a platform for communities to share resilience plans and build capacity through social networks across Ireland.

10. Cross-cutting issues

Operationalising just resilience, requires identifying vulnerable, marginalised, and disadvantaged groups and ensuring that adaptation strategies are tailored to meet their specific needs. Justice is a significant concern, encompassing procedural, distributive, recognition, and restorative dimensions. Such aspects of justice call for attention not only to historical injustices but also to the incorporation of nature and the establishment of frameworks that address overlapping vulnerabilities and equity for future generations. The challenge of non-compensatory losses, like the loss of culturally important landscapes, adds complexity to resilience planning. This is particularly the case when sources of injustice are widespread and difficult to identify in terms of time or location.

Other issues revolve around data gaps and the disconnect between technical vulnerability assessments and community perceptions of resilience. These gaps can create challenges for effective resilience planning showcasing the necessity for improved data collection and transparency in vulnerability assessments. Effective communication is also a crucial issue for engaging diverse audiences, particularly since concerns of climate change significantly differ across Irish society. Utilising framing and storytelling, presented by credible messengers and delivered through tailored formats, can encourage individuals to take action and get involved.

Health and well-being are also crucial dimensions of climate change and resilience. Impacts to both physical and mental health should be considered in more detail within resilience planning. The absence of community-driven mental health resources, like grief networks and therapeutic programs, hampers recovery and resilience. The strength of community resilience relies not only on internal cohesion, agency, and education but also on external support, infrastructure, and sustained investment. Toolkits developed locally and inclusive engagement strategies that foster community cohesion and awareness are essential for enhancing adaptive capacity.

11. Conclusions and future considerations

The working group set out that Ireland's climate resilience strategy must be grounded in clear definitions, measurable objectives, and inclusive frameworks that embed justice and equity at every stage. Resilience should go beyond technical planning to actively involve vulnerable and marginalised groups in decision-making. This requires integrating procedural, distributive, recognition, and restorative justice principles into adaptation processes, ensuring fair participation, resource allocation, and acknowledgment of diverse experiences. Community knowledge must inform planning to avoid tokenism and create meaningful engagement.

Policy priorities identified by the working group include establishing national and local resilience objectives linked to vulnerability assessments; embedding equity into technical standards, funding criteria, and foresight tools; scaling health-oriented adaptation and equitable access to green spaces; building local capacity through long-term investment and skills development; and improving communication strategies using trusted messengers. Scenario planning and risk registers should guide future-proof decisions, supported by reforms in insurance and risk-sharing to reduce financial barriers. Ireland must move from ambition to action delivering coordinated governance, inclusive planning, and sustained investment so resilience becomes a lived reality for all communities.

Practical Considerations:

1. Catalogue tools and indices already in use and assess their suitability for Irish contexts and whether they take Just resilience into account.
2. Undertake a local needs assessment with communities and services to identify priority climate risks, information needs, data requirements, and decision points.
3. Co-design a pilot mapping tool integrating publicly available data, hazard layers, to trial practical workflows and see how it supports fair and inclusive planning.
4. Set up clear governance structures, defining responsibilities for managing data, assessing risks, sharing information, and updating or escalating issues as needed.
5. Create a plan to improve resilience-related data, including steps to fill gaps, strengthen local relevance, and incorporate insights from under-represented groups and lived experience.
6. Regularly evaluate equity outcomes, checking whether interventions are reducing risk for the most vulnerable and helping ensure that benefits and protections are shared fairly.

References

- Adger, W. N., Paavola, J., Huq, S., & Mace, M. J. (2006). Toward justice in adaptation to climate change. *Fairness in adaptation to climate change*, 1(4).
- Agency for Toxic Substances and Disease Registry. (2024). *SVI data & documentation download*. <https://atsdr.cdc.gov/place-health/php/svi/svi-data-documentation-download.html>
- Bankoff, G. (2004). *Mapping vulnerability: Disasters, development and people*. Earthscan.
- Berkes, F., & Ross, H. (2013). Community resilience: Toward an integrated approach. *Society & Natural Resources*, 26(1), 5–20. <https://doi.org/10.1080/08941920.2012.736605>
- Ceolotto, S., Farrell, N., Kakkar, P., & Vollmer, A. (2025). Research 483: Just Resilience and Adaptation in Ireland (JustAdapt). Environmental Protection Agency. <https://www.epa.ie/publications/research/climate-change/research-483-just-resilience-and-adaptation-in-ireland-justadapt.php>
- Chu, E., Natekal, A., Waaland, G., & Cannon, C. E. (2025). An evaluation of US cities' efforts to further distributive justice in climate adaptation planning. *npj Urban Sustainability*, 5(1), 41.
- Collier, S. J., & Lakoff, A. (2008). Distributed preparedness: The spatial logic of domestic security in the United States. *Environment and Planning D: Society and Space*, 26(1), 7–28.
- Dakos, V., & Kéfi, S. (2022). Ecological resilience: What to measure and how. *Environmental Research Letters*, 17(4), 043003.
- Davies, A., Hooks, G., Knox-Hayes, J., & Liévanos, R. S. (2020). Riskscape and the socio-spatial challenges of climate change. *Cambridge Journal of Regions, Economy and Society*, 13(2), 197–213.
- Department of Climate, Energy and the Environment (2021). *National Dialogue on Climate Action (NDCA)*. <https://www.gov.ie/en/department-of-climate-energy-and-the-environment/publications/national-dialogue-on-climate-action-ndca/>
- Department of Defence, Office of Emergency Planning. (2020). Home safety advice/Community resilience.
- Department of Rural and Community Development and the Gaeltacht (DRCGD). (2021). Enhancing participation, leadership and resilience in rural communities.
- Department of the Environment, Climate and Communications. (2024). National Adaptation Framework. <https://www.gov.ie/en/department-of-climate-energy-and-the-environment/publications/national-adaptation-framework-naf/>
- Environmental Protection Agency. (2024). Climate Change's Four Irelands: Climate Change in the Irish Mind, Wave 2, Report 2. <https://www.epa.ie/publications/monitoring--assessment/climate-change/climate-changes-four-irelands-climate-change-in-the-irish-mind-wave-2-report-2.php>

- Environmental Protection Agency. (2025). *Research 483: Just resilience and adaptation in Ireland (JustAdapt)*. <https://www.epa.ie/publications/research/epa-research-2030-reports/research-483-just-resilience-and-adaptation-in-ireland-justadapt.php>
- European Commission. (2023). EU Mission: Climate-Neutral and Smart Cities. https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/eu-missions-horizon-europe/climate-neutral-and-smart-cities_en
- European Environment Agency (EEA). (2023). Towards 'just resilience': Leaving no one behind when adapting to climate change. <https://www.eea.europa.eu/publications/just-resilience-leaving-no-one-behind>
- European Environment Agency (EEA). (2024). Delivering justice in sustainability transitions (Briefing No. 26/2023). <https://doi.org/10.2800/695598>
- European Environment Agency. (2025). Health impacts of air pollution. <https://www.eea.europa.eu/en/europe-environment-2025/countries/indicators/health-impacts-of-air-pollution>
- Folke, C. (2006). Resilience: The emergence of a perspective for social–ecological systems analyses. *Global Environmental Change*, 16(3), 253–267.
- Fünfgeld, H., & Schmid, B. (2020). Justice in climate change adaptation planning: Conceptual perspectives on emergent praxis. *Geographica Helvetica*, 75(4), 437–449.
- Gruby, R., Enrici, A., Betsill, M., Le Cornu, E., & Basurto, X. (2021). *Opening the black box of conservation philanthropy: A co-produced research agenda on private foundations in marine conservation*. *Marine Policy*, 132, 104645. <https://doi.org/10.1016/j.marpol.2021.104645>
- Hamblion, E., et al. (2023). Global public health intelligence: World Health Organization operational practices.
- Hartig, T., Mitchell, R., de Vries, S., & Frumkin, H. (2014). Nature and health. *Annual Review of Public Health*, 35, 207–228. <https://doi.org/10.1146/annurev-publhealth-032013-182443>
- Holland, B. (2017). Procedural justice in local climate adaptation: Political capabilities and transformational change. *Environmental Politics*, 26(3), 391–412.
- Hornborg, A. (2013). Revelations of resilience: From the ideological disarmament of disaster to the revolutionary implications of (p)anarchy. *Resilience*, 1(2), 116–129.
- Howkins, J., Schmidt, D. N., Thomas, J., Hayward, R., Lo, Y. T. E., Neal, J., Lewis, J., Carruthers, E., Coleborn, S., Murray, V., & Oliver, I. (2024). *Mapping vulnerability to climate-related hazards to inform local authority action in adaptation: A feasibility study*. *Public Health in Practice*, 8, 100549. <https://doi.org/10.1016/j.puhip.2024.100549>
- Hügel, S., & Davies, A. R. (2020). Public participation, engagement, and climate change adaptation: A review of the research literature. *Wiley Interdisciplinary Reviews: Climate Change*, 11(4), e645.

Juhola, S., Heikkinen, M., Pietilä, T., Groundstroem, F., & Käyhkö, J. (2022). Connecting climate justice and adaptation planning: An adaptation justice index. *Environmental Science & Policy*, 136, 609–619.

Just Transition Commission of Ireland (2025) Introductory Report. https://justtransitioncommission.ie/wp-content/uploads/2025/10/JTC_Ireland_introductory_report_june_2025.pdf

Lager, F., Coninx, I., Breil, M., Bakhtaoui, I., Branth Pedersen, A., Mattern, K., van den Berg, H., Sini, E., Gallucio, G., Klein, R., & Vierikko, K. (2023). Just resilience for Europe: Towards measuring justice in climate change adaptation. ETC CA. <https://doi.org/10.25424/CMCC-BATP-3M95>

Matin, N., Forrester, J., & Ensor, J. (2018). What is equitable resilience? *World Development*, 109, 197–205.

Meerow, S., & Newell, J. P. (2019). Urban resilience for whom, what, when, where, and why? *Urban Geography*, 40(3), 309–329.

Miller, F. (2020). Exploring the consequences of climate-related displacement for just resilience in Vietnam. *Urban Studies*, 57(7), 1570–1587.

Miller, F., Osbahr, H., Boyd, E., Thomalla, F., Bharwani, S., Ziervogel, G., ... & Nelson, D. (2010). Resilience and vulnerability: Complementary or conflicting concepts? *Ecology and Society*, 15(3).

Moreno, C., Allam, Z., Chabaud, D., Gall, C., & Pratlong, F. (2021). Introducing the “15-Minute City”: Sustainability, resilience and place identity in future post-pandemic cities. *Smart Cities*, 4, 93–111. <https://doi.org/10.3390/smartcities4010006>

Muller, B. (2001). Varieties of distributive justice in climate change. *Climatic Change*, 48(2–3), 273.

Planet Media. (2024). A toolkit for climate storytelling. The Aspen Institute. <https://www.thisisplaneted.org/resources/climate-storytelling-toolkit>

Raworth, K. (2018). *Doughnut economics: Seven ways to think like a 21st century economist*. Chelsea Green Publishing.

REACHOUT. (2024). How to build a climate story – A practical guide. <https://doi.org/10.5281/zenodo.14228928>

Robinson, S. A., & Carlson, D. A. (2021). A just alternative to litigation: Applying restorative justice to climate-related loss and damage. *Third World Quarterly*, 42(6), 1384–1395.

Sandel, M. (2009). *Justice: What's the right thing to do?*. Penguin.

Sippel, M., Shaw, C., & Marshall, G. (2022). Ten key principles: How to communicate climate change for effective public engagement. <https://doi.org/10.2139/ssrn.4151465>

Skillington, T. (2023). Cosmopolitan theories of justice. In *Theorising Justice* (pp. 45–59). Bristol University Press.

Skillington, T., & Kirsch, J. M. (2024). Addressing inequalities in access to the city's green and blue spaces. *Urban Resilience and Sustainability*, 2(3), 272–288. <https://doi.org/10.3934/urs.2024014>

Sultana, F. (2022). The unbearable heaviness of climate coloniality. *Political Geography*, 99, 102638.

Uejio, C. K., Wilhelmi, O. V., Golden, J. S., Mills, D. M., Gulino, S. P., & Samenow, J. P. (2011). *Intra-urban societal vulnerability to extreme heat: The role of heat exposure and the built environment, socioeconomics, and neighborhood stability*. *Health & Place*, 17(2), 498–507. <https://doi.org/10.1016/j.healthplace.2010.12.005>

United Nations Department of Economic and Social Affairs. (2025). 68% of the world's population will live in cities by 2050.

United Nations, Department of Economic and Social Affairs. (2018). *2018 revision of World Urbanization Prospects*. <https://www.un.org/en/desa/2018-revision-world-urbanization-prospects>

World Health Organization. (2021). *Nature, biodiversity and health: An overview of interconnections*. Copenhagen: WHO Regional Office for Europe.

An Gníomhaireacht um Chaomhnú Comhshaoil

Tá an GCC freagrach as an gcomhshaoil a chosaint agus a fheabhsú, mar shócmhainn luachmhar do mhuintir na hÉireann. Táimid tiomanta do dhaoine agus don chomhshaoil a chosaint ar thionchar díobhálach na radaíochta agus an truaillithe.

Is féidir obair na Gníomhaireachta a roinnt ina trí phríomhréimse:

- Rialáil: Rialáil agus córais chomhlíonta comhshaoil éifeachtacha a chur i bhfeidhm, chun dea-thorthaí comhshaoil a bhaint amach agus díriú orthu siúd nach mbíonn ag cloí leo.
- Eolas: Sonraí, eolas agus measúnú ardchaighdeán, spriocdhírthe agus tráthúil a chur ar fáil i leith an chomhshaoil chun bonn eolais a chur faoin gcinnteoireacht.
- Abhcóideacht: Ag obair le daoine eile ar son timpeallachta glaine, táirgiúla agus dea-chosanta agus ar son cleachtas inbhuanaithe i dtaobh an chomhshaoil.

I measc ár gcuid freagrachtaí tá:

CEADÚNÚ

- Gníomhaíochtaí tionscail, dramhaíola agus stórála peitрил ar scála mór;
- Sceitheadh fuíolluisce uirbigh;
- Úsáid shrianta agus scaoileadh rialaithe Orgánach Géinmhodhnaithe;
- Foinsí radaíochta ianúcháin;
- Astaíochtaí gás ceaptha teasa ó thionscal agus ón eitlíocht trí Scéim an AE um Thrádáil Astaíochtaí.

FORFHEIDHMÍÚ NÁISIÚNTA I LEITH CÚRSAÍ COMHSHAOIL

- Iníúchadh agus cigireacht ar shaoráidí a bhfuil ceadúnas acu ón GCC;
- Cur i bhfeidhm an dea-chleachtais a stiúradh i ngníomhaíochtaí agus i saoráidí rialáilte;
- Maoirseacht a dhéanamh ar fhreagrachtaí an údaráis áitiúil as cosaint an chomhshaoil;
- Caighdeán an uisce óil phoiblí a rialáil agus údaruithe um sceitheadh fuíolluisce uirbigh a fhorfheidhmiú;
- Caighdeán an uisce óil phoiblí agus phríobháidigh a mheasúnú agus tuairiscíú air;
- Comhordú a dhéanamh ar líonra d'eagraíochtaí seirbhíse poiblí chun tacú le gníomhú i gcoinne coireachta comhshaoil;
- An dlí a chur orthu siúd a bhriseann dlí an chomhshaoil agus a dhéanann dochar don chomhshaoil.

BAINISTÍOCHT DRAMHAÍOLA AGUS CEIMICEÁIN SA CHOMHSHAOIL

- Rialacháin dramhaíola a chur i bhfeidhm agus a fhorfheidhmiú lena n-áirítear saincheisteanna forfheidhmithe náisiúnta;
- Staitisticí dramhaíola náisiúnta a ullmhú agus a fhoilsiú chomh maith leis an bPlean Náisiúnta um Bainistíocht Dramhaíola Guaisí;
- An Clár Náisiúnta um Chosc Dramhaíola a fhorbairt agus a chur i bhfeidhm;
- Reachtaíocht ar rialú ceimiceán sa timpeallacht a chur i bhfeidhm agus tuairiscíú ar an reachtaíocht sin.

BAINISTÍOCHT UISCE

- Plé le struchtúir náisiúnta agus réigiúnacha rialachais agus oibriúcháin chun an Chreat-treoir Uisce a chur i bhfeidhm;
- Monatóireacht, measúnú agus tuairiscíú a dhéanamh ar chaighdeán aibhneacha, lochanna, uiscí idirchreasa agus cósta, uiscí snámha agus screamhuisce chomh maith le tomhas ar leibhéil uisce agus sreabhadh abhann.

EOLAÍOCHT AERÁIDE & ATHRÚ AERÁIDE

- Fardail agus réamh-mheastacháin a fhoilsiú um astaíochtaí gás ceaptha teasa na hÉireann;
- Rúnaíocht a chur ar fáil don Chomhairle Chomhairleach ar Athrú Aeráide agus tacaíocht a thabhairt don Idirphlé Náisiúnta ar Gníomhú ar son na hAeráide;

- Tacú le gníomhaíochtaí forbartha Náisiúnta, AE agus NA um Eolaíocht agus Beartas Aeráide.

MONATÓIREACHT AGUS MEASÚNÚ AR AN GCOMHSHAOIL

- Córais náisiúnta um monatóireacht an chomhshaoil a cheapadh agus a chur i bhfeidhm: teicneolaíocht, bainistíocht sonraí, anailís agus réamhaisnéisiú;
- Tuairiscí ar Staid Timpeallacht na hÉireann agus ar Tháscairí a chur ar fáil;
- Monatóireacht a dhéanamh ar chaighdeán an aeir agus Treoir an AE i leith Aeir Ghlain don Eoraip a chur i bhfeidhm chomh maith leis an gCoinbhinsiún ar Aerthruailliú Fadraoin Trasteorann, agus an Treoir i leith na Teorann Náisiúnta Astaíochtaí;
- Maoirseacht a dhéanamh ar chur i bhfeidhm na Treorach i leith Torainn Timpeallachta;
- Measúnú a dhéanamh ar thionchar pleananna agus clár beartaithe ar chomhshaoil na hÉireann.

TAIGHDE AGUS FORBAIRT COMHSHAOIL

- Comhordú a dhéanamh ar ghníomhaíochtaí taighde comhshaoil agus iad a mhaoiniú chun brú a aithint, bonn eolais a chur faoin mbeartas agus réitigh a chur ar fáil;
- Comhoibriú le gníomhaíocht náisiúnta agus AE um thaighde comhshaoil.

COSAINN RAIDEOLAÍOCH

- Monatóireacht a dhéanamh ar leibhéil radaíochta agus nochtadh an phobail do radaíocht ianúcháin agus do réimsí leictreamaighnéadacha a mheas;
- Cabhrú le pleananna náisiúnta a fhorbairt le haghaidh éigeandálaí ag eascairt as taismí núicléacha;
- Monatóireacht a dhéanamh ar fhorbairtí thar lear a bhaineann le saoráidí núicléacha agus leis an tsábháilteacht raideolaíochta;
- Sainseirbhísí um chosaint ar an radaíocht a sholáthar, nó maoirsiú a dhéanamh ar sholáthar na seirbhísí sin.

TREOIR, ARDÚ FEASACHTA AGUS FAISNÉIS INROCHTANA

- Tuairiscíú, comhairle agus treoir neamhspleách, fianaise-bhunaithe a chur ar fáil don Rialtas, don tionscal agus don phobal ar ábhair maidir le cosaint comhshaoil agus raideolaíoch;
- An nasc idir sláinte agus folláine, an geilleagar agus timpeallacht ghlan a chur chun cinn;
- Feasacht comhshaoil a chur chun cinn lena n-áirítear tacú le hiompraíocht um éifeachtúlacht acmhainní agus aistriú aeráide;
- Tástáil radóin a chur chun cinn i dtithe agus in ionaid oibre agus feabhsúchán a mholadh áit is gá.

COMHPHÁIRTÍOCHT AGUS LÍONRÚ

Oibriú le gníomhaireachtaí idirnáisiúnta agus náisiúnta, údaráis réigiúnacha agus áitiúla, eagraíochtaí neamhrialtais, comhlachtaí ionadaíochta agus ranna rialtais chun cosaint comhshaoil agus raideolaíoch a chur ar fáil, chomh maith le taighde, comhordú agus cinnteoireacht bunaithe ar an eolaíocht.

BAINISTÍOCHT AGUS STRUCHTÚR NA GNÍOMHAIREACHTA UM CHAOMHNÚ COMHSHAOIL

Tá an GCC á bainistiú ag Bord Iánaimseartha, ar a bhfuil Ard-Stiúrthóir agus cúigear Stiúrthóir. Déantar an obair ar fud cúig cinn d'Oifigí:

- An Oifig um Inbhuanaitheacht i leith Cúrsaí Comhshaoil
- An Oifig Forfheidhmithe i leith Cúrsaí Comhshaoil
- An Oifig um Fhianaise agus Measúnú
- An Oifig um Chosaint ar Radaíocht agus Monatóireacht Comhshaoil
- An Oifig Cumarsáide agus Seirbhísí Corparáideacha

Tugann coistí comhairleacha cabhair don Gníomhaireacht agus tagann siad le chéile go rialta le plé a dhéanamh ar ábhair imní agus le comhairle a chur ar an mBord.



Headquarters

**PO Box 3000,
Johnstown Castle Estate,
County Wexford, Ireland**
T: +353 53 916 0600
F: +353 53 916 0699
E: info@epa.ie
W: www.epa.ie
LoCall: 0818 33 55 99

Regional Inspectorate

McCumiskey House,
Richview, Clonskeagh Road,
Dublin 14, Ireland
T: +353 1 268 0100
F: +353 1 268 0199

Regional Inspectorate

Inniscarra, Co. Cork,
Ireland
T: +353 21 487 5540
F: +353 21 487 5545

Regional Inspectorate

Seville Lodge, Callan Road,
Kilkenny, Ireland
T: +353 56 779 6700
F: +353 56 779 6798

Regional Inspectorate

John Moore Road, Castlebar,
Co. Mayo, Ireland
T: +353 94 904 8400
F: +353 94 902 1934

Regional Inspectorate

The Glen, Monaghan,
Ireland
T: +353 47 77600
F: +353 47 84987

Regional Offices

The Civic Centre,
Church St, Athlone,
Co. Westmeath, Ireland
T: +353 906 475722



EPA headquarters office
PO Box 3000
Environmental Protection Agency
Johnstown Castle Estate
Co. Wexford
Y35 W821
Email: info@epa.ie
www.epa.ie